INSTALLATION RESTORATION PROGRAM
SITE INVESTIGATION REPORT
IRP SITES NO.1, NO.2, AND NO.3

VOLUME II
APPENDICIES A-G

106th CIVIL ENGINEERING FLIGHT
NEW YORK AIR NATIONAL GUARD
ROSLYN AIR NATIONAL GUARD STATION
ROSLYN, NEW YORK

NOVEMBER 1996

Prepared For

ANGRC/CEVR
ANDREWS AFB, MARYLAND

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OPERATIONAL TECHNOLOGIES CORPORATION
4100 N.W. LOOP 410, SUITE 230
SAN ANTONIO, TEXAS 78229-4253

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THREE SITES WERE INVESTIGATED UNDER THE INSTALLATION RESTORATION PROGRAM: SITE 1- ACCESS ROAD TO THE AGE SHOP, SITE 2 - OLD WASTE HOLDING AREA NO. 1, SITE 3 - OLD WASTE HOLDING AREA NO. 2. FURTHER INVESTIGATION IS RECOMMENDED AT SITE 2, NO FURTHER ACTION IS RECOMMENDED AT SITES 1 & 3.

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INSTALLATION RESTORATION PROGRAM
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106th CIVIL ENGINEERING FLIGHT
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Prepared By

Operational Technologies Corporation
4100 N.W. Loop 410, Suite 230
San Antonio, Texas 78229-4253
(210) 731-0000

APPENDIX A

SOIL BORING LOGS

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SECTION A.1 INTRODUCTION

Boring log diagrams have been compiled for each borehole location drilled during this study. Boring diagrams for piezometers and monitoring wells are also included. Diagrams are presented in numerical order. The borehole identification is keyed to the site number and background (BG), piezometer (PZ), or monitoring well designation (MW) (i.e., 01-001MW). The diagrams combine in one page both a verbal and graphical illustration of the lithology encountered during drilling, water level data encountered during drilling and surveyed elevation of the ground surface at the borehole location.

The sample description includes the color, texture, mineralogy, moisture and consistency for each sample collected. The proportions of sand, gravel, and fines are visually estimated and described using the following semi-quantitative adjectives:

Adjective	Estimated Percent of Total Sample
Trace	0 - 5
Few	5 - 10
Little	15 - 25
Some	30 - 45
Mostly	50 - 100

Proportional adjectives precede the lithology, such as little gravel (15 - 25% gravel) and trace of silt (0 - 5% silt).

Lithologic symbols are derived and generalized from the Unified Soil Classification System shown in Figure A.1.

In the boring logs that follow, the column headings have the following meanings:

Depth:	Depth in feet below land surface.
Blows/6 in.:	The number of blow required to drive a split-spoon sampler each of the 6-inch intervals.
Sampled:	The interval of sample cored below land surface.
Percent Recovery:	The percentage of sample recovered in the split-spoon sampler per sampling run.
Field Screening:	The reading of photoionization compounds detected in soil samples by a photoionization detector during initial sampler opening and ATHA, and BTEX and benzene from field GC analysis.

Figure A.1

KEY TO BORING LOG SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM – ASTM D2487

MAJOR DIVISIONS			SYMBOL/GRAPHIC	DESCRIPTIONS
COARSE–GRAINED SOILS (>50% Smaller Than #200 Sieve)	GRAVELS (More than 50% of coarse fraction is larger than the #4 sieve size.)	Clean gravels with little or no fines	GW	Well–Graded Gravels, Gravel – Sand Mixtures
			GP	Poorly Graded Gravels, Gravels – Sand Mixtures
		Gravels with over 12% fines	GM	Silty Gravels, Poorly Graded Gravel–Sand–Clay Mixtures
			GC	Clayey Gravels, Poorly Graded Gravel–Sand–Clay Mixtures
	SANDS (More than 50% of coarse fraction is smaller than the #4 sieve size.)	Clean sands with little or no fines	SW	Well–Graded Sands, Gravelly Sands
			SP	Poorly Graded Sands, Gravelly Sands
		Sands with over 12% fines	SM	Silty Sands, Poorly Graded Sand–Silt Mixtures
			SC	Clayey Sands, Poorly Graded Sand–Clay Mixtures
FINE–GRAINED SOILS (>50% Smaller Than #200 Sieve)	SILTS AND CLAYS (Liquid limit less than 50)		ML	Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands
			CL	Inorganic Clays of Low to Medium Plasticity: Gravelly, Sandy or Silty Clays; Lean Clays
			OL	Organic Clays and Organic Silty Clays of Low Plasticity
	SILTS AND CLAYS (Liquid limit greater than 50)		MH	Inorganic Silts, Micaceous or Diatomacious Fine Sandy or Silty Soils, Elastic Silts
			CH	Inorganic Clays of High Plasticity Fat Clays
			OH	Organic Clays of Medium to High Plasticity, Organic Silts
HIGHLY ORGANIC SOILS			Pt	Peat and Other Highly Organic Soils

Sample retained for on–site screening.

Sample prepared for laboratory analysis.

Water Table Level

PID Photo–Ionization Detector readings (ppm)

Asphaltic Concrete
Portland Cement Concrete
Cement Grout
Boulders or Bedrock

DRAFT FIGURE A.1 P\KEYLOG2	KEY TO BORING LOG Roslyn Air National Guard Station New York Air National Guard Roslyn, New York	OPTECH OPERATIONAL TECHNOLOGIES CORPORATION 1994

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LOG OF BORING 01-001

Project No.:	1315-143	**Sampling Method:**	California Style Sampler
Logged By:	Earl Parker	**Depth Drilled:**	11.50 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	**Depth To Water:**	Not Encountered
Driller:	Robert Rogers	**Date Measured:**	N/A
Date Drilled:	9/20/93	**Surface Elevation:**	204.14 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	7 15 21	100			Asphalt Cover	2.1	1.5	ND	ND
					Sand, silt, gravel (fill) Light brown silty sand.				
					Brown/tan sand, trace gravel				
5	22 34 33	90				0.0	0.5	ND	ND
10	9 15 37	90			Brown gravelly sand, trace silt and cobbles.	7.3	6.8	169.9	ND
					Boring Terminated at 11.5				

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LOG OF BORING 01-002

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	13.00 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	4/7/94	Surface Elevation:	203.23 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
					Asphalt Cover				
	15 12 17	90			Sand, silt, gravel (fill)	0.0	0.0	ND	ND
5	3 9 13	80			Brown silty sand with trace of gravel.	0.0	0.0	ND	ND
					Brown gravelly sand, trace of silt.				
10	26 37 43	70				0.0	0.0	ND	ND
	25 27 25	90			Brown gravelly sand, trace of silt.	0.0	0.0	ND	ND
					Boring Terminated at 13.0 ft.				

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LOG OF BORING 01-003

Project No.: 1315-143
Logged By: Earl Parker
Drilling Co.: Soil Mechanics Drilling Co.
Driller: Robert Rogers
Date Drilled: 9/21/93
Drilling Method: Hollow-Stem Auger

Sampling Method: California Style Sampler
Depth Drilled: 13.00 ft.
Depth To Water: Not Encountered
Date Measured: N/A
Surface Elevation: 202.05 ft.

Depth (ft.)	Blows/6"	% Recovery	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	19 20 15	70	Asphalt Cover Sand, silt, gravel with wood fragments (fill)	8.5	7.5	ND	ND
5	1 1 1	0		-	-	-	-
	P P 2	90	Gray sandy silt with some gravel	15.5	3.5	ND	ND
10	12 15 17	80	Brown silt and silty sand with some gravel.	5.3	3.2	ND	ND
	20 18 16	80	Brown silt and silty sand with some gravel.	-	-	-	-
			Boring Terminated at 13.0 ft.				

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LOG OF BORING 01-004

Project No.:	1315-143	**Sampling Method:**	California Style Samplers
Logged By:	Earl Parker	**Depth Drilled:**	11.50 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	**Depth To Water:**	Not Encountered
Driller:	Robert Rogers	**Date Measured:**	N/A
Date Drilled:	9/21/93	**Surface Elevation:**	202.45 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	15 28 20	0			Asphalt Cover	-	-	-	-
					Sand, silt, gravel, cobble with charcoal (fill).				
	11 28 29	70				6.8	3.5	62.3	35.7
					Sand, silt, gravel with wood and charcoal fragments (fill).				
5	1 3 5	50				7.9	-	ND	ND
					Light brown sand, trace of silt and gravel.				
10	16 30 40	70				4.0	10.3	2.7	ND
					Boring Terminated at 11.5 ft.				

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LOG OF BORING 02-001

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	13.00 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	9/21/93	Surface Elevation:	202.41 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	5 6 6	80			Asphalt Cover Sand, silt, gravel (fill)	0.0	0.0	11.3	ND
					Brown gravelly sand with trace of silt.				
5	18 28 24	80				0.0	0.0	ND	ND
10	82	0				-	-	-	-
	24 22 20	80			Brown gravelly sand with trace of silt and cobbles	0.0	0.0	4.6	ND
					Boring Terminated at 13.0 ft.				

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LOG OF BORING 02-002

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	13.00 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	9/21/93	Surface Elevation:	203.61 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	4 5 5	80			Asphalt Cover Sand, silt, gravel (fill)	134.0	813.0	10,734	ND
					Brown sandy silt with a trace of gravel.				
5	13 14 13	70				0.0	0.0	ND	ND
					Brown silty sand with a trace of gravel.				
10	19 19 16	70				0.0	0.0	ND	ND
	13 14 13	70			Brown silty sand with a trace of gravel.	-	-	-	-
					Boring Terminated at 13.0 ft.				

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LOG OF BORING 02-003

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	11.50 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	4/7/94	Surface Elevation:	204.24 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
					Asphalt Cover				
	5 4 5	70			Sand, silt, gravel, charcoal fragments (fill)	0.0	0.0	ND	ND
5	6 7 7	60			Brown silty sand, trace of gravel and cobbles. (fill?)	1.7	3.3	ND	ND
					Brown to black silty sand and sand with trace gravel and clay.				
10	19 24 19	80				1.6	2.5	5.3	ND
					Boring Terminated at 11.5 ft.				

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LOG OF BORING 02-004

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	5.50 ft.
Drilling Co.:	OpTech	Depth To Water:	Not Encountered
Driller:	Jerry Arriaga	Date Measured:	N/A
Date Drilled:	9/23/94	Surface Elevation:	204.18 ft.
Drilling Method:	Hand Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
		90			Sand, silt, gravel (fill)	40.8	-	66.8	ND
5		90			Sand, silt, gravel with some cobbles.	251	-	10,296	144.1
					Boring Terminated at 5.5 ft.				

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LOG OF BORING 02-005

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	5.50 ft.
Drilling Co.:	OpTech	Depth To Water:	Not Encountered
Driller:	Jerry Arriaga	Date Measured:	N/A
Date Drilled:	9/23/94	Surface Elevation:	204.79 ft.
Drilling Method:	Hand Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
		90			Sand, silt, gravel with charcoal fragments (fill)	1.8	-	6.1	ND
					Sandy silt and clay, moist and cohesive.				
5		100				457	-	5,045	276.6
					Boring Terminated at 5.5 ft.				

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LOG OF BORING 02-006

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	5.50 ft.
Drilling Co.:	OpTech	Depth To Water:	Not Encountered
Driller:	Jerry Arriaga	Date Measured:	N/A
Date Drilled:	9/23/94	Surface Elevation:	203.29 ft.
Drilling Method:	Hand Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
		80			Sand, silt, gravel (fill)	5.5	-	27.1	15.0
					Dark brown silty sand and sand with gravel.				
5		80				2.3	-	33.3	ND
					Boring Terminated at 5.5 ft.				

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LOG OF BORING 02-007

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	5.50 ft.
Drilling Co.:	OpTech	Depth To Water:	Not Encountered
Driller:	Jerry Arriaga	Date Measured:	N/A
Date Drilled:	9/23/94	Surface Elevation:	204.77 ft.
Drilling Method:	Hand Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
		80			Sand, silt, gravel (fill) some charcoal fragments	1.2	-	105.5	0.7
					Brown silty sand with gravel.				
5		80				6.5	-	21.5	2.1
					Boring Terminated at 5.5 ft.				

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LOG OF BORING 02-008

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	5.50 ft.
Drilling Co.:	OpTech	Depth To Water:	Not Encountered
Driller:	Jerry Arriaga	Date Measured:	N/A
Date Drilled:	9/23/94	Surface Elevation:	204.67 ft.
Drilling Method:	Hand Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
		80			Sand, silt, gravel with charcoal fragment (fill)	20	-	2.1	0.9
					Brown silty sand with gravel				
5		80				48	-	21.1	ND
					Boring Terminated at 5.5 ft.				

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LOG OF BORING 03-001

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	11.50 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	9/20/93	Surface Elevation:	202.67 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	16, 24, 16	80			Asphalt Cover	1.2	9.5	17.1	3.8
					Sand, silt, gravel (fill)				
5	3, 3, 4	80			Light brown silty sand and gravel.	1.3	4.1	3.4	ND
					Light brown sand with some gravel and trace of silt.				
10	10, 15, 15					1.6	2.4	ND	ND
					Boring Terminated at 11.5 ft.				

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LOG OF BORING 03-002

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	11.50 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	9/20/93	Surface Elevation:	201.98 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	15 9 15	80			Asphalt Cover Sand, silt, gravel (fill)	0.4	5.3	3.2	ND
5	3 5 4	90			Gray silty sand, with some gravel.	0.4	5.1	ND	ND
					Brown sand to silty sand with trace of gravel and clay.				
10	16 19 15	80				0.3	3.1	3.3	ND
					Boring Terminated at 11.5 ft.				

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LOG OF BORING 03-003

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	13.00 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	9/20/93	Surface Elevation:	202.44 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	8, 9, 9	80			Asphalt Cover Sand, silt, gravel (fill)	4.2	6.3	ND	ND
5	3, 5, 4	80			Sand, silt, and gravel with wood fragments (fill).	2.9	5.7	5.4	ND
					Brown medium sand with some silt, gravel, and angular cobbles.				
10	17, 28, 29	80				5.9	6.8	ND	ND
	27, 27, 26	90			Brown medium sand with some silt, gravel, and angular cobbles.	4.8	-	ND	ND
					Boring Terminated at 13.0 ft.				

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LOG OF BORING 03-004

Project No.:	1315-143	**Sampling Method:**	California Style Sampler
Logged By:	Earl Parker	**Depth Drilled:**	13.00 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	**Depth To Water:**	Not Encountered
Driller:	Robert Rogers	**Date Measured:**	N/A
Date Drilled:	9/20/93	**Surface Elevation:**	202.69 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	14	70			Asphalt Cover	24.6	42.6	17.4	ND
	14				Sand, silt, and gravel (fill)				
	10								
	5	80							
	4								
	3								
5	18	80			Gravelly silty sand and sand with some silt and gravel.	6.4	10.7	ND	ND
	25								
	27								
					Sand, silt, and gravel with medium to fine sand and some cobbles.				
10	14	90				4.2	11.1	4.1	ND
	15								
	12								
						3.6	21.6	16.2	ND
					Boring Terminated at 13.0 ft.				

106th CEF, Roslyn Air National Guard Station
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OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

LOG OF BORING 03-005

Project No.: 1315-143
Logged By: Earl Parker
Drilling Co.: Soil Mechanics Drilling Co.
Driller: Robert Rogers
Date Drilled: 4/7/94
Drilling Method: Hollow-Stem Auger

Sampling Method: California Style Sampler
Depth Drilled: 13.00 ft.
Depth To Water: Not Encountered
Date Measured: N/A
Surface Elevation: 202.30 ft.

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
					Asphalt Cover				
	7 10 14	80			Sand, silt, and gravel (fill)	0.0	0.0	ND	ND
					Light brown sand, silty sand with some gravel and little clay.				
5	3 6 7	80				0.5	0.0	ND	ND
10	15 21 14	80			Light brown, sand, silty sand with gravel.	0.0	0.0	ND	ND
	9 11 10	80				0.0	0.0	ND	ND
					Boring Terminated at 13.0 ft.				

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LOG OF BORING 03-006

Project No.:	1315-143	Sampling Method:	California Style Sampler
Logged By:	Earl Parker	Depth Drilled:	11.50 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	Depth To Water:	Not Encountered
Driller:	Robert Rogers	Date Measured:	N/A
Date Drilled:	9/20/93	Surface Elevation:	201.80 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	11 9 8	80			Asphalt Cover Sand, silt, gravel (fill)	6.7	50.5	ND	59.0
					Light brown fine to medium sand, silty sand, and some gravel.				
5	3 3 3	90				1.3	6.3	ND	ND
10	22 29 27	80			Light brown sand, fine sand and silty sand with gravel.	2.7	3.4	ND	ND
					Boring Terminated at 11.5 ft.				

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LOG OF BORING BG-001

Project No.:	1315-143	**Sampling Method:**	California Style Sampler
Logged By:	Earl Parker	**Depth Drilled:**	11.5 ft.
Drilling Co.:	Soil Mechanics Drilling Co.	**Depth To Water:**	Not Encountered
Driller:	Robert Rogers	**Date Measured:**	N/A
Date Drilled:	4/7/94	**Surface Elevation:**	204.40 ft.
Drilling Method:	Hollow-Stem Auger		

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)
	2 2 4	80			Sand, silt, and gravel, trace of clay	0	0	ND	ND
5	8 11 16	80			Light brown sand, silty sand with some gravel and little clay.	0	0	ND	ND
10	11 12 9	70			Light brown, sand, silty sand with gravel.	0	0	ND	ND
					Boring Terminated at 11.5 ft.				

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LOG OF BORING 01-001MW

Project No.:	1315-143	**Sampling Method:**	Surface Return
Logged By:	Earl Parker	**Depth Drilled:**	155.67 ft.
Drilling Co.:	Water Resources, Inc.	**Depth To Water:**	142.24 ft.
Driller:	John Barnes	**Date Measured:**	5/13/94
Date Drilled:	2/06/94	**Surface Elevation:**	204.38 ft.
Drilling Method:	O-DEX	**TOC Elevation:**	204.02 ft.

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)	Monitoring Well
0–3					Sandy fill material. Sand and gravel with some fill material					
3–15					Sand. Medium to fine sand, silt and gravel.					
15–22					Silty sand and gravel.					
22–35					Mostly gravel and rock fragments. Some fine sand.					
35–40					Medium sand with fine sand and gravel.					
40–55					Abundant rock fragments and gravel with fine sand.					
55–63					Mostly gravel and rock fragments.					
63–68					Sand, silt, gravel and minor clay.					
68–					Silty sand. Sand, silt, and clay with well rounded gravel.					

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

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LOG OF BORING 01-001MW

Project No.:	1315-143	**Sampling Method:**	Surface Return
Logged By:	Earl Parker	**Depth Drilled:**	155.67 ft.
Drilling Co.:	Water Resources, Inc.	**Depth To Water:**	142.24 ft.
Driller:	John Barnes	**Date Measured:**	5/13/94
Date Drilled:	2/06/94	**Surface Elevation:**	204.38 ft.
Drilling Method:	O-DEX	**TOC Elevation:**	204.02 ft.

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)	Monitoring Well
90					Very coarse sand and gravel with rock fragments.					
95					Medium to fine sand and gravel.					
100										
105					Medium to fine sand, gravel, and rock fragments.					
110										
115										
120										
125					Fine to medium sand, gravel, silty and few rock fragments.					
130										
135					Medium sand and gravel.					
140										
145										
150					Medium sand. Some fine sand and gravel.					
155					Boring Terminated at 155.67 ft.					
160										
165										

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O P T E C H

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LOG OF BORING 02-001MW

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	155.00 ft.
Drilling Co.:	Water Resources, Inc.	Depth To Water:	141.56 ft.
Driller:	John Barnes	Date Measured:	5/13/94
Date Drilled:	5/11/94	Surface Elevation:	203.66 ft.
Drilling Method:	O-DEX	TOC Elevation:	203.22 ft.

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)	Monitoring Well
0–10					Unsorted fill material and road base to poorly sorted sand, silt, gravel, and angular rock fragments.					
10–24					Sandy gravel and rock fragments with coarse sand.					
24–30					Medium to fine sand and gravel.					
30–40					Sand, silt, and gravel with larger gravel and rock fragments.					
40–45					Sand, silt, and gravel.					
45–65					Fine to medium sand, gravel, and rock fragments.					
65–75					Sand, silt and larger gravel. Few rock fragments.					
75–					Sand, silt, and gravel with clay.					

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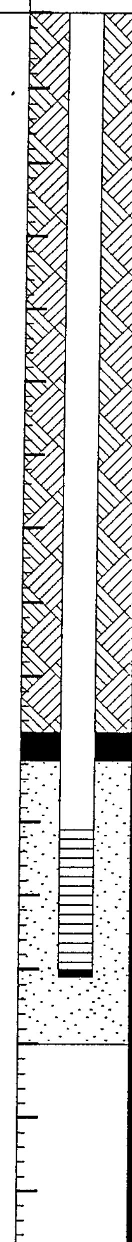
LOG OF BORING 02-001MW

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	155.00 ft.
Drilling Co.:	Water Resources, Inc.	Depth To Water:	141.56 ft.
Driller:	John Barnes	Date Measured:	5/13/94
Date Drilled:	5/11/94	Surface Elevation:	203.66 ft.
Drilling Method:	O-DEX	TOC Elevation:	203.22 ft.

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)	Monitoring Well
					Fine to medium sand and gravel.					
90					Fine to medium sand, gravel and rock fragments.					
95										
100					Fine to medium sand, silt, and some gravel.					
105					Fine to medium sand, gravel, and rock fragments.					
110										
115					Medium sand, silt, and gravel.					
120										
125										
130										
135					Medium to fine sand and gravel.					
140										
145										
150					Silty sand and clay.					
155					Boring Terminated at 155.0 ft.					
160										
165										



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LOG OF WELL 03-001MW

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	153.00 ft
Drilling Co.:	Water Resources, Inc.	Depth To Water:	139.63 ft.
Driller:	John Barnes	Date Measured:	5/13/94
Date Drilled:	9/10/94	Surface Elevation:	201.53 ft.
Drilling Method:	O-DEX	TOC Elevation:	201.22 ft.

Depth (ft.)	Samples	Graphics	DESCRIPTION OF MATERIALS	Monitoring Well	CONSTRUCTION DETAIL
0–2			Blacktop and road base material to VPS sand, silt, and gravel.		Flush Mount Steel Vault Box
2–27			Sand, silt, and gravel.		
27–35			Fine to medium sand and gravel.		Bentonite Grout
35–50			Rock fragments, gravel, and fine sand becoming medium sand, gravel.		
50–75			Medium sand, silt, and gravel		4in. Sch 40 PVC Flush Thread Riser
75–83			Medium to fine sand and gravel.		

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

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LOG OF WELL 03-001MW

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	153.00 ft
Drilling Co.:	Water Resources, Inc.	Depth To Water:	139.63 ft.
Driller:	John Barnes	Date Measured:	5/13/94
Date Drilled:	9/10/94	Surface Elevation:	201.53 ft.
Drilling Method:	O-DEX	TOC Elevation:	201.22 ft.

Depth (ft.)	Samples	Graphics	DESCRIPTION OF MATERIALS	Monitoring Well	CONSTRUCTION DETAIL
90, 95			Medium to fine sand, gravel and rock fragments. Gravelly sand and rock fragments.		Bentonite Grout
100			Sand, silt, and gravel.		
105–140			Medium sand with fine sand and gravel.		Bentonite Pellet Seal; #2 Washed Gravel Sand Pack
140–150			Medium sand, fine sand and gravel.		Depth To Water at 139.63 ft.; 4in. Sch 40 PVC Flush Thread Screen, 0.010 in. Slotted
			Boring Terminated at 153.0 ft.		Well Terminated at 153.0 ft.

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LOG OF BORING PS1

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	160.00 ft.
Drilling Co.:	Water Resources, Inc.	Depth To Water:	141.65 ft.
Driller:	John Barnes	Date Measured:	4/29/94
Date Drilled:	4/19/94	Surface Elevation:	201.92 ft.
Drilling Method:	O-DEX	TOC Elevation:	NA

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)	Monitoring Well
					Sand and gravel. Silty sand with small gravel. (fill)					
5					Clay, silty clay with fine to medium sand. Few gravel.					
10										
15										
20					Clayey silt and fine sand with gravel.					
25					Silty sand, some medium sand with gravel. Intervals of clayey silt.					
30					Silty clay to sandy silty clay.					
35										
40										
45					Fine sand and silt with small rounded gravel.					
50										
55										
60										
65					Silty fine sand. Silt and sand with gravel.					
70										
75										
80					Medium sand with increasing rock fragments. More gravel.					

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LOG OF BORING PS1

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	160.00 ft.
Drilling Co.:	Water Resources, Inc.	Depth To Water:	141.65 ft.
Driller:	John Barnes	Date Measured:	4/29/94
Date Drilled:	4/19/94	Surface Elevation:	201.92 ft.
Drilling Method:	O-DEX	TOC Elevation:	NA

Depth (ft.)	Blows/6"	% Recovery	Samples	Graphic	DESCRIPTION OF MATERIALS	FIELD SCREENING PID (ppm)	ATHA (ppm)	BTEX (ppb)	Benzene (ppb)	Monitoring Well
90					Sand to silty sand with well rounded gravel.					
95 100 105 110					Course sand and gravel. Some medium to fine sand.					
115					Sand. Medium to fine sand with silt, gravel, and rock fragments.					
120 125 130					Fine sand, silt, and clay. To medium and coarse sand and gravel.					
135 140 145 150 155					Sand and gravel. Medium sand and rounded gravel.					
160 165					Boring Terminated at 160.00 ft.					

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LOG OF WELL PS2

Project No.:	1315-143
Logged By:	Earl Parker
Drilling Co.:	Water Resources, Inc.
Driller:	John Barnes
Date Drilled:	4/22/94
Drilling Method:	O-DEX

Sampling Method:	Surface Return
Depth Drilled:	160.00 ft.
Depth To Water:	144.20 ft.
Date Measured:	4/23/94
Surface Elevation:	206.01 ft.
TOC Elevation:	205.75 ft.

Depth (ft.)	Samples	Graphics	DESCRIPTION OF MATERIALS	Monitoring Well	CONSTRUCTION DETAIL
			Medium sand with small gravel, black coal grains (fill).		Flush Mount Steel Vault Box
5			Sand, silt and gravel.		
10					
15					
20					
25					
30					Bentonite Grout
35					
40			Silty sand, gravel and rock fragments.		
45					
50			Medium to fine sand with gravel.		
55					
60			Silt, sandy silt and clay.		2in. Sch 40 PVC Flush Thread Riser
65					
70			Fine to medium sand and silt with gravel.		
75					
80					

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LOG OF WELL PS2

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	160.00 ft.
Drilling Co.:	Water Resources, Inc.	Depth To Water:	144.20 ft.
Driller:	John Barnes	Date Measured:	4/23/94
Date Drilled:	4/22/94	Surface Elevation:	206.01 ft.
Drilling Method:	O-DEX	TOC Elevation:	205.75 ft.

Depth (ft.)	Samples	Graphics	DESCRIPTION OF MATERIALS	Monitoring Well	CONSTRUCTION DETAIL
90					Bentonite Grout
95			Medium to coarse sand and silt with gravel and rock fragments.		
100			Sand and gravel.		
105					
110					
115					
120					
125					
130					
135			Sand, medium to fine sand and gravel.		
140					
145					Bentonite Pellet Seal Depth To Water at 144.20 ft. #2 Washed Gravel Sand Pack
150					
155					2in. Sch 40 PVC Flush Thread Screen, 0.010 in. Slotted
160			Well Terminated at 160.0 ft.		Well Terminated at 160.0 ft.

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LOG OF WELL PS3

Project No.:	1315-143	Sampling Method:	Surface Return
Logged By:	Earl Parker	Depth Drilled:	160.05 ft.
Drilling Co.:	Water Resources, Inc.	Depth To Water:	142.25 ft.
Driller:	John Barnes	Date Measured:	4/23/94
Date Drilled:	4/26/94	Surface Elevation:	203.42 ft.
Drilling Method:	O-DEX	TOC Elevation:	203.10 ft.

Depth (ft.)	Samples	Graphics	DESCRIPTION OF MATERIALS	Monitoring Well	CONSTRUCTION DETAIL
0			Gravel, cobbles, and rock fragments.		Flush Mount Steel Vault Box
10			Sand, silt, gravel and rock fragments.		
18.5			Sand, silt, and gravel.		
28			Coarse sand and gravel. Gravel and rock fragments.		Bentonite Grout
55			Sand and gravel. Rock fragments.		2in. Sch 40 PVC Flush Thread Riser
69.5			Fine sand, silt, and clayey silt with some gravel.		

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80

106th CEF, Roslyn Air National Guard Station

Roslyn, New York

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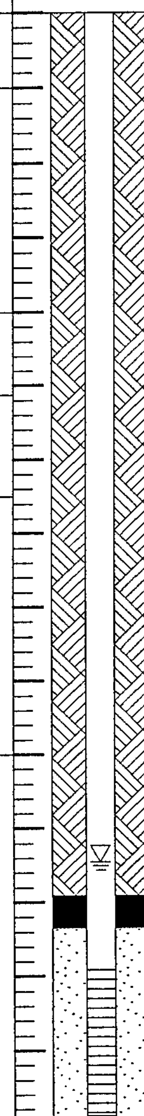
LOG OF WELL PS3

Project No.:	1315-143	**Sampling Method:**	Surface Return
Logged By:	Earl Parker	**Depth Drilled:**	160.05 ft.
Drilling Co.:	Water Resources, Inc.	**Depth To Water:**	142.25 ft.
Driller:	John Barnes	**Date Measured:**	4/23/94
Date Drilled:	4/26/94	**Surface Elevation:**	203.42 ft.
Drilling Method:	O-DEX	**TOC Elevation:**	203.10 ft.

Depth (ft.)	Samples	Graphics	DESCRIPTION OF MATERIALS	Monitoring Well	CONSTRUCTION DETAIL
90			Fine to medium sand, silty sand and small rounded gravel.		
95					
100					Bentonite Grout
105			Fine to medium sand, silt, and gravel with few rock fragments.		
110			Fine to medium sand, silt with gravel and rock fragments.		
115			Sand and silt, with more gravel. Gravelly medium sand and silt.		
120					
125					
130					
135			Medium sand and some gravel and fine sand.		
140					Depth To Water at 142.25 ft.
145					Bentonite Pellet Seal
150					#2 Washed Gravel Sand Pack
155					2in. Sch 40 PVC Flush Thread Screen, 0.010 in. Slotted
160			Well Terminated at 160.05 ft.		Well Terminated at 160.05 ft.



APPENDIX B

SOIL GAS SURVEY RESULTS

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Tracer Research Corporation

Shallow Soil Gas Investigation

ROSLYN AIR NATIONAL GUARD STATION
Roslyn, New York

September 13 - 15, 1993

Shallow Soil Gas Investigation

ROSLYN AIR NATIONAL GUARD STATION
Roslyn, New York

September 13 - 15, 1993

Prepared for:

OPERATIONAL TECHNOLOGIES CORPORATION
4100 Northwest Loop 410, Suite 230
San Antonio, Texas 78229-4253

Telephone: (210) 731-0000
FAX: (210) 731-0008

Prepared by:

TRACER RESEARCH CORPORATION
3855 North Business Center Drive
Tucson, Arizona 85705-2944

Telephone: (602) 888-9400
FAX: (602) 293-1306

Submitted by:
Marjorie D. Stivers
Karen L. McWhirter

9-93-287-S

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TABLES

1.0 ROSLYN AIR NATIONAL GUARD STATION INVESTIGATION

Tracer Research Corporation (Tracer Research) performed a shallow soil gas investigation at the Roslyn Air National Guard Station located at 209 Harbor Hills Road, Village of East Hills, in the town of Roslyn, Long Island, New York. The investigation was conducted September 13 through 15, 1993 for Operational Technologies Corporation (Op Tech) of San Antonio, Texas.

1.1 Objective

The purpose of the investigation was to determine the extent of possible soil and/or groundwater contamination by screening the shallow soil gas for the presence of volatile organic compounds (VOCs). The soil gas samples were collected and analyzed for the following analyte class and compounds:

Analyte Class: Hydrocarbon
benzene, toluene, ethylbenzene, xylenes (BTEX)
total volatile hydrocarbons (TVHC C1 - C9)

1.2 Overview of Results

For this investigation, fifty-eight samples were collected from fifty-eight sampling locations. Samples were collected at depths of 4 to 5 feet below ground surface (bgs). A summary of the results of the investigation is presented in Table 1.

Table 1. Soil Gas Sample Summary

Compound	# of samples in which compound was detected	Low conc. µg/L	High conc. µg/L	Sample(s) with high conc.
benzene	30	0.01	0.4	S2-5-5'
toluene	28	0.02	110	S2-9-5'
ethylbenzene	1	NA	2	S3-9-5'
xylenes	9	0.1	12	S3-9-5'
TVHC C1 - C9	58	0.3	30,000	S1-10-5'

NA = Not Applicable

2.0 SITE DESCRIPTION

The soil gas samples were collected at three different areas at the Air National Guard Station. Site 1 is located between Building 36 and Building 17. Site 2 is located to the north of Building 16 and Site 3 is located to the north of Building 36. Samples were collected through asphalt cover.

The subsurface of this site consists of glacial till and glacial outwash deposits. The depth to groundwater was reported to be 60 feet bgs. Groundwater flow is to the southeast.

3.0 SOIL GAS SAMPLING PARAMETERS

Soil gas sampling probes consisted of 7- foot lengths of 3/4-inch diameter hollow steel pipe. The probes were fitted with detachable drive tips and hydraulically pushed and/or pounded to depths of 4 to 5 feet bgs. Where there was not van access the probes were handpounded to depth. A pneumatic rotary hammer drill and air compressor were used to drill holes through the asphalt.

The aboveground end of each probe was fitted with an aluminum reducer (manifold) and a length of polyethylene tubing leading to a vacuum pump. Soil gas was pulled by the vacuum pump into the probe. Samples were collected in a syringe by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. The vacuum was monitored by a vacuum gauge to ensure an adequate gas flow from the vadose zone was maintained.

The volume of air within the probe was purged by evacuating 2 to 5 probe volumes of gas. The evacuation time in minutes versus the vacuum in inches of mercury (Hg) was used to calculate the necessary evacuation time. The vacuum in inches Hg was recorded at each sampling location.

Sample probe vacuums ranged from 2 to 15 inches Hg. The vacuum capacity of the pump was approximately 22 inches Hg.

4.0 ANALYTICAL PARAMETERS

During this investigation, 5 to 10 milliliters (mL) of soil gas were collected for each sample and immediately analyzed in the Tracer Research analytical van. Subsamples (replicates) from these samples were injected into the gas chromatograph (GC) in volumes of 1 to 1,000 microliters (µL).

Analytical instruments were calibrated daily using fresh working standards made from National Institute of Sciences and Technology (NIST) traceable standards and reagent blanked solvents.

4.1 Chromatographic System

A Hewlett Packard 5890 Series II gas chromatograph, equipped with a flame ionization detector (FID) and one computing integrator, was used for the soil gas analyses. The compounds were separated in the GC on one 6 foot by 1/8 inch outer diameter (OD) packed analytical column (10% TCEP stationary phase bonded to 80/100 mesh Chromosorb PAW support) in a temperature controlled oven. Nitrogen was used as the carrier gas.

The instrument calibrations were checked periodically throughout the day to monitor the response factor and retention time. The following paragraphs explain the GC and FID processes.

GC Process

The soil gas is injected into the GC where it is swept through the analytical column by the carrier gas. The detector senses the presence of a component different from the carrier gas and converts that information to an electrical signal. The components of the sample pass through the column at different rates, according to their individual properties, and are detected by the detector. Compounds are identified by the time it takes them to pass through the column (retention time).

FID Process

The FID utilizes a flame produced by the combustion of hydrogen and air. When a component, which has been separated on the GC analytical column, is introduced into the flame, a large increase in ions occurs. A collector with a polarizing voltage is applied near the flame and the ions are attracted and produce a current, which is proportional to the amount of the sample compound in the flame. The electrical current causes the computing integrator to record a peak on a chromatogram. By measuring the area of the peak and comparing that area to the integrator response of a known aqueous standard, the concentration of the analyte in the sample is determined.

4.2 Analyses

The detection limits for target compounds depend on the sensitivity of the detector to the individual compound as well as the volume of the sample injection. The detection limits of the target compounds were calculated from the response factors, the sample injection sizes, and the calculated minimum peak size (area) observed under the conditions of the analyses. If any compound was not detected in an analysis, the detection limit is given as a "less than" value, e.g., <0.01 µg/L. The approximate detection limits for the target compounds are presented in Table 2.

Table 2. Detection Limits for Target Compounds

Compound	Detection Limits (µg/L)
benzene	0.01
toluene	0.02
ethylbenzene	0.03
xylenes	0.05
TVHC	0.05

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Tracer Research's Quality Assurance (QA) and Quality Control (QC) program was followed to maintain data that was reproducible through the investigation. An overview presenting the significant aspects of this program is presented below.

Soil Gas Sampling Quality Assurance

To ensure consistent collection of samples, the following procedures are performed:

- Sampling Manifolds

Tracer Research's custom designed sampling manifold connects the sample probe to the vacuum line and pump. The manifold is designed to eliminate sample exposure to the polymeric (plastic) materials that connect the probe to the vacuum pump.

The sampling manifold is attached to the end of the probe, forming an air tight union between the probe and the silicone tubing septum. The septum connects the manifold to the pump vacuum line and permits syringe sampling.

This sampling system allows the sample to be taken upstream of the sampling pump, manifold, and septum. Since cross contamination of sampling equipment can be a major problem, Tracer Research replaces the materials (probe and syringe), between sampling points, that contact the soil gas before or during sampling.

-Sampling Probes

Steel probes are used only once each day. To eliminate the possibility of cross contamination, they are washed with high pressure soap and hot water spray, or steam-cleaned. Enough sampling probes are carried on each van to avoid the need to re-use any during the day.

-Glass Syringes

Glass syringes are used for only one sample a day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.

-Sampling Efficiency

Soil gas pumping is monitored by a vacuum gauge to ensure that an adequate flow of gas from the soil is maintained. A reliable gas sample can be obtained if the sample vacuum gauge reading is at least 2 inches Hg less than the maximum measured vacuum of the vacuum pump.

Analytical Quality Assurance Samples

Quality assurance samples are performed at the minimum frequencies listed in Table 3. The actual frequency depends on the number of samples analyzed each day and the length of time of the survey.

Table 3. Quality Assurance Samples

Sample type	Frequency
Ambient Air Samples	3 per day or 1 per site
Analytical Method Blanks	5% (1 per 20 samples or 1 a day)
Continuing Calibration Check	20% (1 every 5 samples)
Field System Blank	1 per day
Reagent Blank	1 per set of working standards
Replicate Samples	10 to 100% of all samples

The ambient air samples are obtained on site by sampling the air immediately outside the mobile analytical van and directly injecting it into the GC. Analytical method blanks are taken to demonstrate that the analytical instrumentation is not contaminated. These are performed by injecting carrier gas (nitrogen) into the GC with the sampling syringe. Subsampling syringes are also checked in this fashion.

The injector port septa through which soil gas samples are injected into the GC are replaced daily to prevent possible gas leaks from the chromatographic column. All sampling and subsampling syringes are decontaminated after use and are not used again until they have been decontaminated by washing in anionic detergent and baking at 90°C.

Field system blanks are analyzed to check for contamination of the sampling apparatus, e.g., probe and sampling syringe. A sample is collected using standard soil gas sampling procedures, but without putting the probe into the ground. The results are compared to those obtained from a concurrently sampled ambient air analysis.

If the blanks detect compounds of interest at concentrations that indicate equipment contamination or concentrations that exceed normal background levels (ambient air analysis), corrective actions are performed. If the problem cannot be corrected, an out-of-control event is documented and reported. Field system blanks are not performed every day if clean probes are still available. Field system blanks are performed after any probe decontamination process.

A reagent blank is performed to ensure the solvent used to dilute the stock standards is not contaminated. Analytical instruments are calibrated daily using fresh working standards made from National Institute of Sciences and Technology traceable standards and reagent blanked solvents.

Quantitative precision is assured by replicating analysis of 10 to 100 percent of the samples. The percentage is based on the sample analysis time. Replicate analyses are performed by subsampling vapors from the same sampling syringe.

6.0 RESULTS

The analytical results from this soil gas investigation are condensed in Appendix A. The data are presented by location and by analyte concentration. When the compound was not detected, the detection limit is presented as a "less than" value, e.g., <0.01 µg/L. TVHC is defined as total volatile hydrocarbons in the range of C1 through C9.

Soil gas samples are identified by sample location and sampling depth. For

example, S2-2-4' represents a soil gas sample collected at Site 2 location 2 at a depth of 4 feet bgs.

APPENDIX A Condensed Data

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
OPERATIONAL TECHNOLOGIES CORPORATION/ ROSLYN AIR NATIONAL GUARD STATION/ ROSLYN, NEW YORK/ 9-93-287-S
09/13/93

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC C1 - C9 µg/L
AIR	0.04	0.04	<0.03	<0.05	1
S3-2-5'	0.04	0.06	<0.03	<0.05	0.7
S3-1-5'	0.01	0.02	<0.03	<0.05	0.5
S3-5-5'	0.04	<0.02	<0.03	<0.05	0.7
S3-3-5'	0.03	<0.02	<0.03	<0.05	0.4
S3-4-5'	0.03	<0.02	<0.03	<0.05	0.7
S3-6-5'	0.05	0.07	<0.03	<0.05	2
S3-8-5'	<0.03	<0.06	<0.1	<0.2	340*
S3-7-5'	<0.2	<0.06	<0.1	<0.2	1500*
S3-9-5'	<10	19	2	12	27000
AIR	0.03	0.05	<0.03	<0.05	1
S1-31-5'	<0.01	<0.02	<0.03	<0.05	0.3
S1-28-5'	0.1	<0.02	<0.03	<0.05	0.8
S1-25-5'	0.02	0.04	<0.03	<0.05	1
S1-22-5'	0.06	0.02	<0.03	<0.05	1
S1-19-5'	0.03	0.02	<0.03	<0.05	2
S1-16-5'	0.03	<0.02	<0.03	<0.05	5
S1-13-5'	<0.1	<0.2	<0.3	<0.5	1300*
S1-10-5'	<0.2	<0.4	<0.6	<0.9	30000*
S1-7-5'	<0.1	<0.2	<0.3	<0.5	1300*

* TVHC may contain elevated levels of nonaromatic compounds

Analyzed by: L. Schenmeyer
Proofed by: M. Shiles

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
OPERATIONAL TECHNOLOGIES CORPORATION/ ROSLYN AIR NATIONAL GUARD STATION/ ROSLYN, NEW YORK/ 9-93-287-S
09/13/93

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC C1 - C9 µg/L
S1-4-5'	<0.03	<0.06	<0.1	<0.2	540*
S1-1-5'	0.2	0.02	<0.03	<0.05	4
S1-2-5'	0.01	<0.02	<0.03	<0.05	150*
S1-5-5'	<0.1	<0.2	<0.3	<0.5	1300*
S1-8-5'	<0.03	<0.06	<0.1	<0.2	740*
AIR	0.02	<0.02	<0.03	<0.05	1

* TVHC may contain elevated levels of nonaromatic compounds

Analyzed by: L. Schenmeyer
Proofed by: M. Stivus

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
OPERATIONAL TECHNOLOGIES CORPORATION/ ROSLYN AIR NATIONAL GUARD STATION/ ROSLYN, NEW YORK/ 9-93-287-S
09/14/93

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC C1 - C9 µg/L
AIR	0.05	0.2	<0.03	<0.05	2
S1-11-5'	<0.1	<0.1	<0.2	<0.2	1900*
S1-14-5'	<0.2	<0.2	<0.3	<0.5	3800*
S1-17-5'	<0.05	0.2	<0.2	<0.2	500*
S1-20-5'	0.04	0.2	<0.03	0.2	2
S1-26-5'	0.09	0.1	<0.03	0.2	2
S1-32-5'	0.03	0.2	<0.03	<0.05	0.7
S1-33-5'	0.01	0.02	<0.03	<0.05	1
S1-30-5'	0.01	0.02	<0.02	<0.02	0.8
S1-27-5'	0.03	0.1	<0.03	0.1	1
S1-24-5'	0.02	0.04	<0.03	0.1	2
AIR	0.03	0.07	<0.03	0.1	2
S1-21-5'	0.02	0.1	<0.03	0.1	1
S1-18-4'	<0.2	<0.4	<0.7	<0.9	1700*
S1-15-5'	<0.2	<0.4	<0.7	<1	4600*
S1-12-5'	<0.2	<0.4	<0.7	<1	3600*
S1-9-5'	<0.1	<0.2	<0.3	<0.5	1600*
AIR	0.01	0.03	<0.03	<0.05	1

* TVHC may contain elevated levels of nonaromatic compounds

Analyzed by: L. Schenmeyer
Proofed by: MS

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
OPERATIONAL TECHNOLOGIES CORPORATION/ ROSLYN AIR NATIONAL GUARD STATION/ ROSLYN, NEW YORK/ 9-93-287-S
09/14/93

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC C1 - C9 µg/L
S1-6-5'	<0.02	<0.04	<0.07	<0.1	280*
S1-3-5'	0.04	0.09	<0.03	<0.05	1
S3-11-5'	<0.03	<0.06	<0.1	<0.2	420*
S3-10-5'	0.01	<0.02	<0.03	<0.05	0.6
AIR	0.03	0.04	<0.03	<0.05	1
S2-15-5'	<0.01	0.02	<0.03	<0.05	0.7
S2-16-5'	0.01	0.02	<0.03	<0.05	0.3
S2-12-5'	<2	<4	<7	<10	18000*
S2-7-5'	<0.2	<0.4	<0.7	<1	6000*
S2-10-5'	<0.1	<0.2	<0.3	<0.5	540*

* TVHC may contain elevated levels of nonaromatic compounds

Analyzed by: L. Schenmeyer
Proofed by: mS

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
OPERATIONAL TECHNOLOGIES CORPORATION/ ROSLYN AIR NATIONAL GUARD STATION/ ROSLYN, NEW YORK/ 9-93-287-S
09/15/93

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC C1 - C9 µg/L
AIR	0.03	0.03	<0.04	<0.05	1
S2-2-4'	0.01	0.02	<0.04	<0.05	0.5
S2-3-5'	0.07	0.9	<0.04	<0.05	18
S2-4-4'	0.01	<0.02	<0.04	<0.05	2
S2-6-5'	0.01	1	<0.04	<0.05	72
S2-5-5'	0.4	0.2	<0.04	0.2	2
S2-1-5'	<0.01	0.05	<0.04	0.1	3
S2-8-5'	0.07	0.06	<0.04	0.1	1
S2-9-5'	<2	110	<7	<10	14000*
S2-11-5'	<0.01	<0.02	<0.04	<0.05	1
S2-13-5'	<0.2	28	<0.7	<1	2000*
S2-14-5'	<0.01	<0.02	<0.04	<0.05	0.9
AIR	<0.01	<0.02	<0.04	<0.05	1

* TVHC may contain elevated levels of nonaromatic compounds

Analyzed by: L. Schenmeyer
Proofed by: MS

Tracer Research Corporation appreciates the opportunity of being of service to your organization. Because we are constantly striving to improve our service to you, we welcome any comments or suggestions you may have about how we can be more responsive to the needs of your organization. If you have any questions about the field work, analytical results, or this report, please give Marty Favero a call at (602) 888-9400.

APPENDIX C

WELL CONSTRUCTION DIAGRAMS

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SECTION C.1 INTRODUCTION

Well construction diagrams have been completed for each piezometer and monitoring well installed as part of the Site Investigation. Diagrams are presented in numerical order. The diagrams include water level data and well construction information for each individual well. Well construction information includes an outline of the wellbore, depth of the borehole, the screened interval, and the sand packed and bentonite seal interval. Due to the collapse and subsequent abandonment, there is no well construction diagram for piezometer 3 (PS-3).

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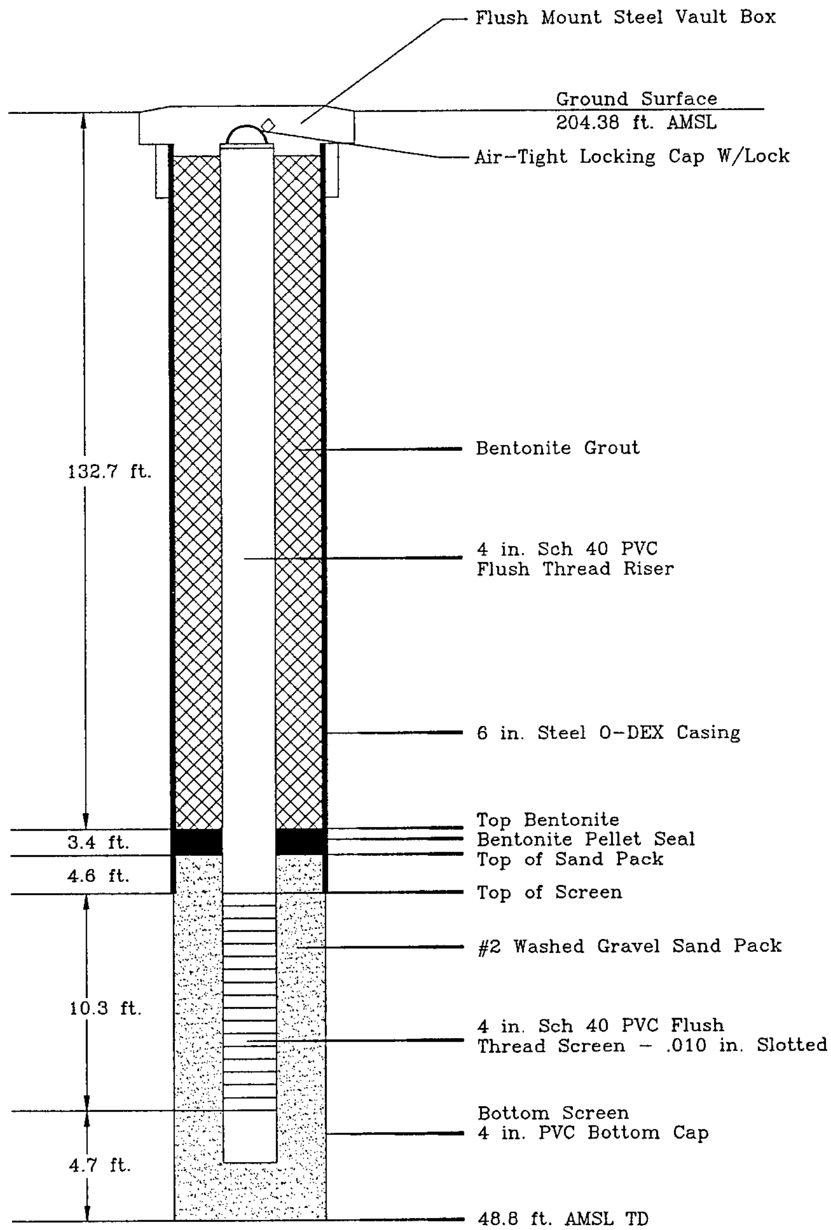
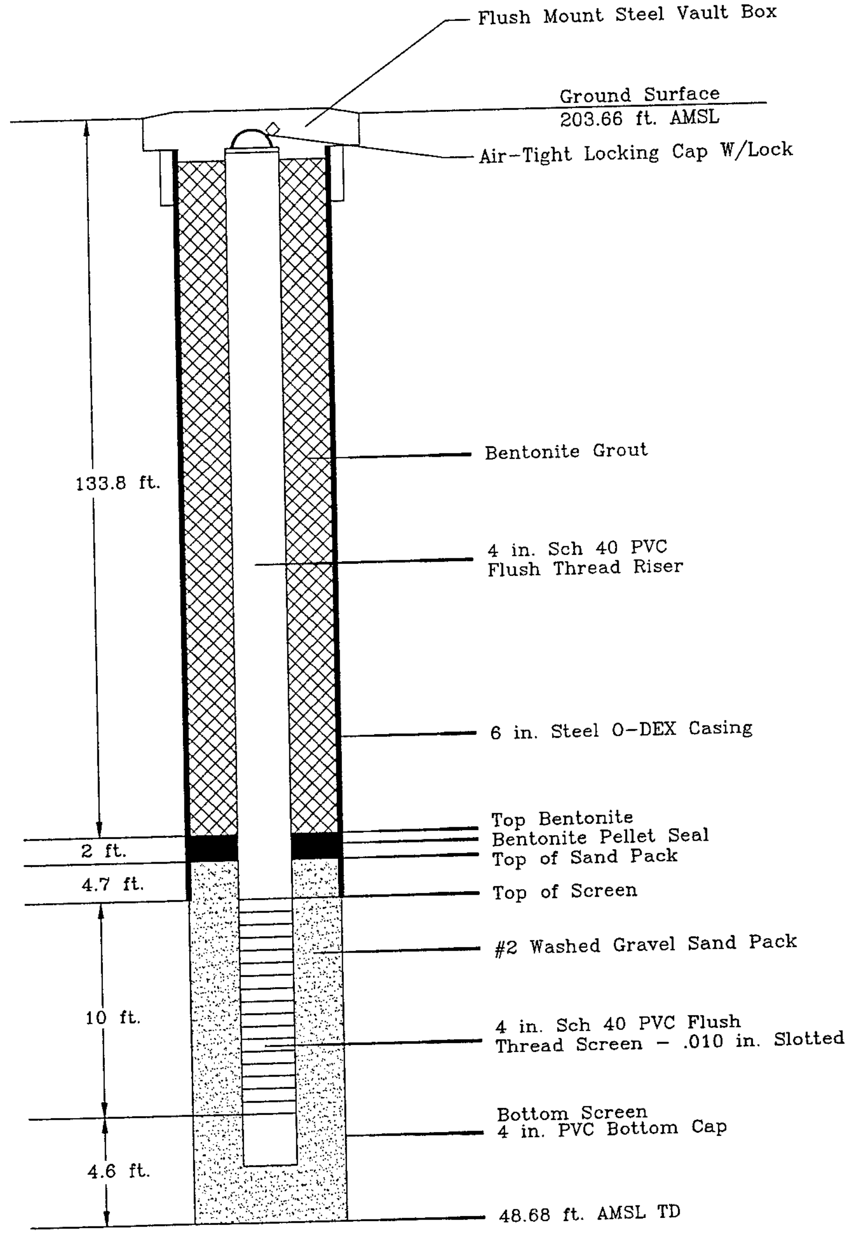
Project:	Roslyn ANGS SI	Date Installed:	May 2-6, 1994
Town/City:	Roslyn	Drilling Contractor:	Water Resources, Inc.
County:	Nassau State: New York	Drilling Method:	O-DEX
TOC Elev:	204.25 ft.	Borehole Diameter:	6 in.
Ground Elev.:	204.38 ft.	Development Technique:	Electric Submersible Pump
Water Level:	142.24 ft. TOC		
Total Well Depth:	48.88 ft.	Not To Scale	



WELL CONSTRUCTION LOG
Well No. 01-001MW

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION
JULY 1994 ROSLYN\01-001MW

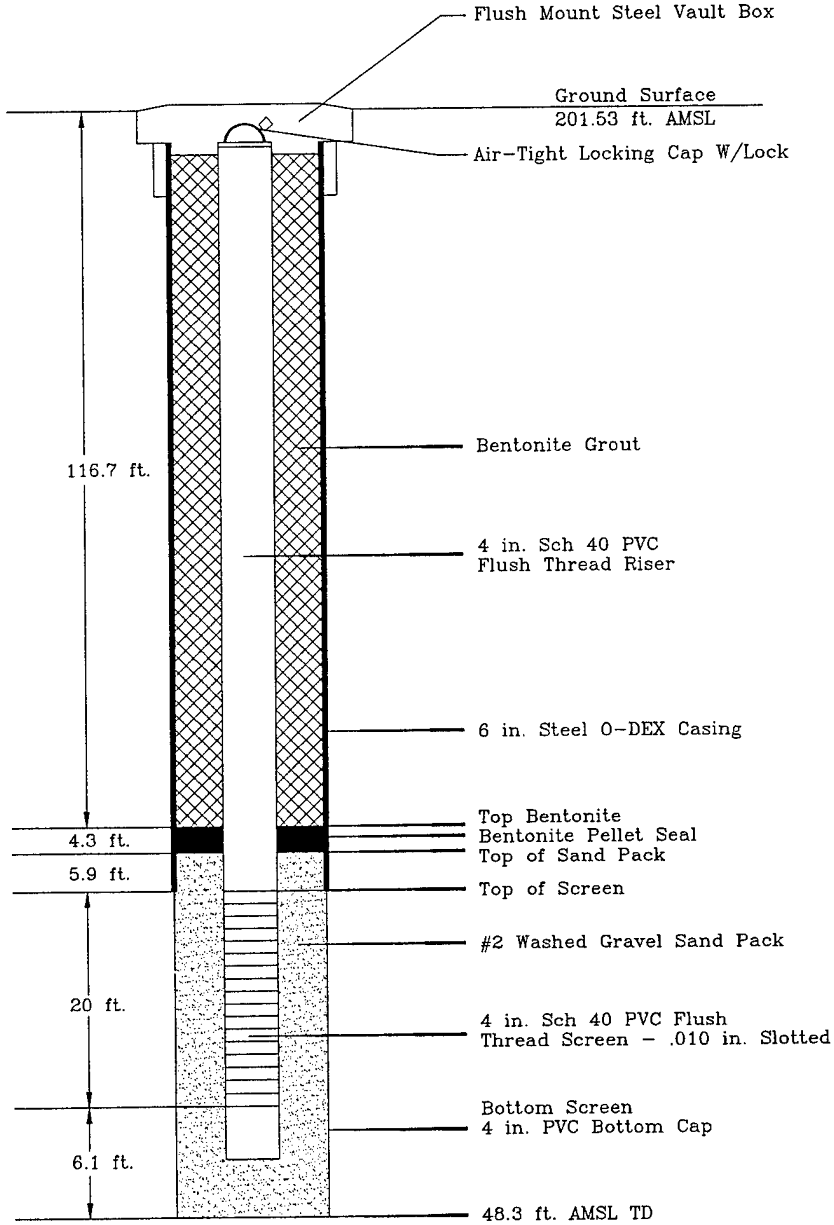
Project:	Roslyn ANGS SI	Date Installed:	May 11-12, 1994
Town/City:	Roslyn	Drilling Contractor:	Water Resources, Inc.
County:	Nassau State: New York	Drilling Method:	O-DEX
TOC Elev:	203.35 ft.	Borehole Diameter:	6 in.
Ground Elev.:	203.66 ft.	Development Technique:	Electric Submersible Pump
Water Level:	141.56 ft. TOC		
Total Well Depth:	48.68 ft.	Not To Scale	



WELL CONSTRUCTION LOG
Well No. 02-001MW

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION
JULY 1994
ROSLYN\02-001MW

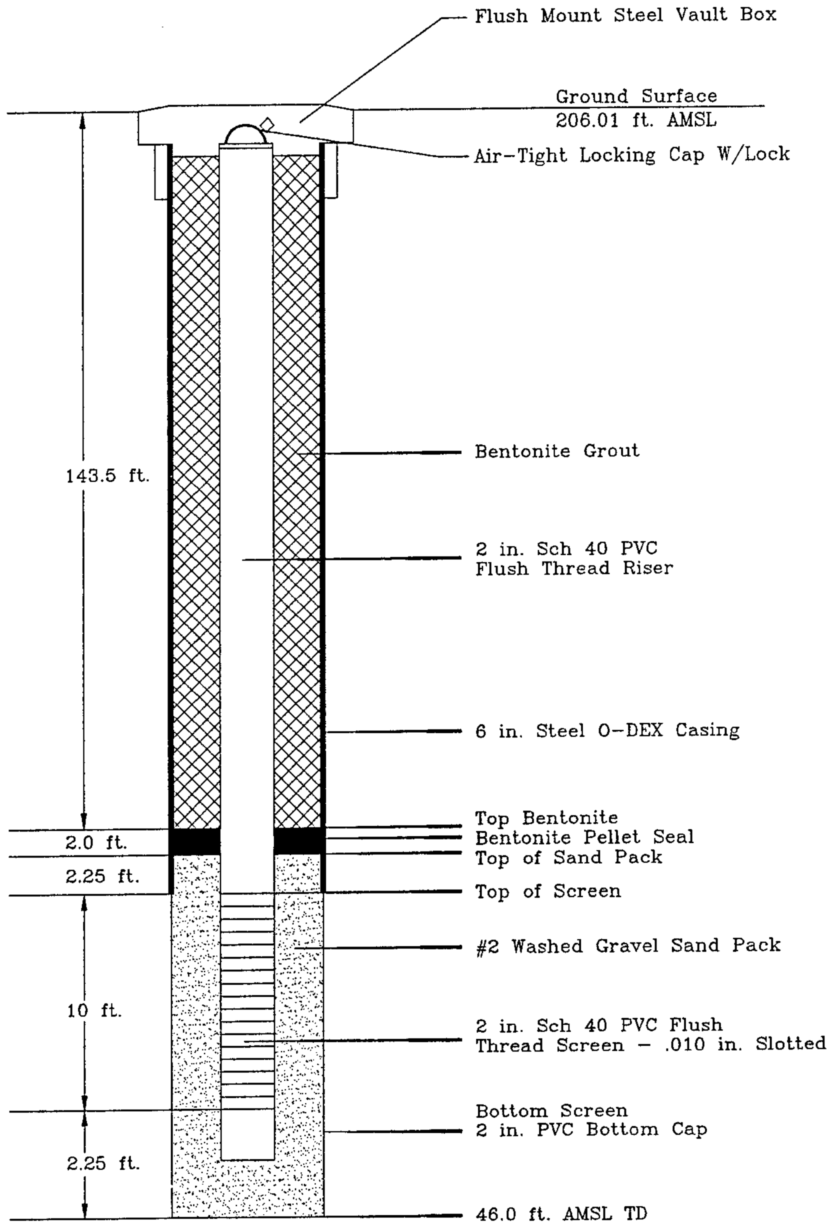
Project:	Roslyn ANGS SI	Date Installed:	May 9-10, 1994
Town/City:	Roslyn	Drilling Contractor:	Water Resources, Inc.
County:	Nassau State: New York	Drilling Method:	O-DEX
TOC Elev:	201.22 ft.	Borehole Diameter:	6 in.
Ground Elev.:	201.53 ft.	Development Technique:	Electric Submersible Pump
Water Level:	139.63 ft. TOC		
Total Well Depth:	48.3 ft.	Not To Scale	



WELL CONSTRUCTION LOG
Well No. 03-001MW

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION
JULY 1994 ROSLYN\03-001MW

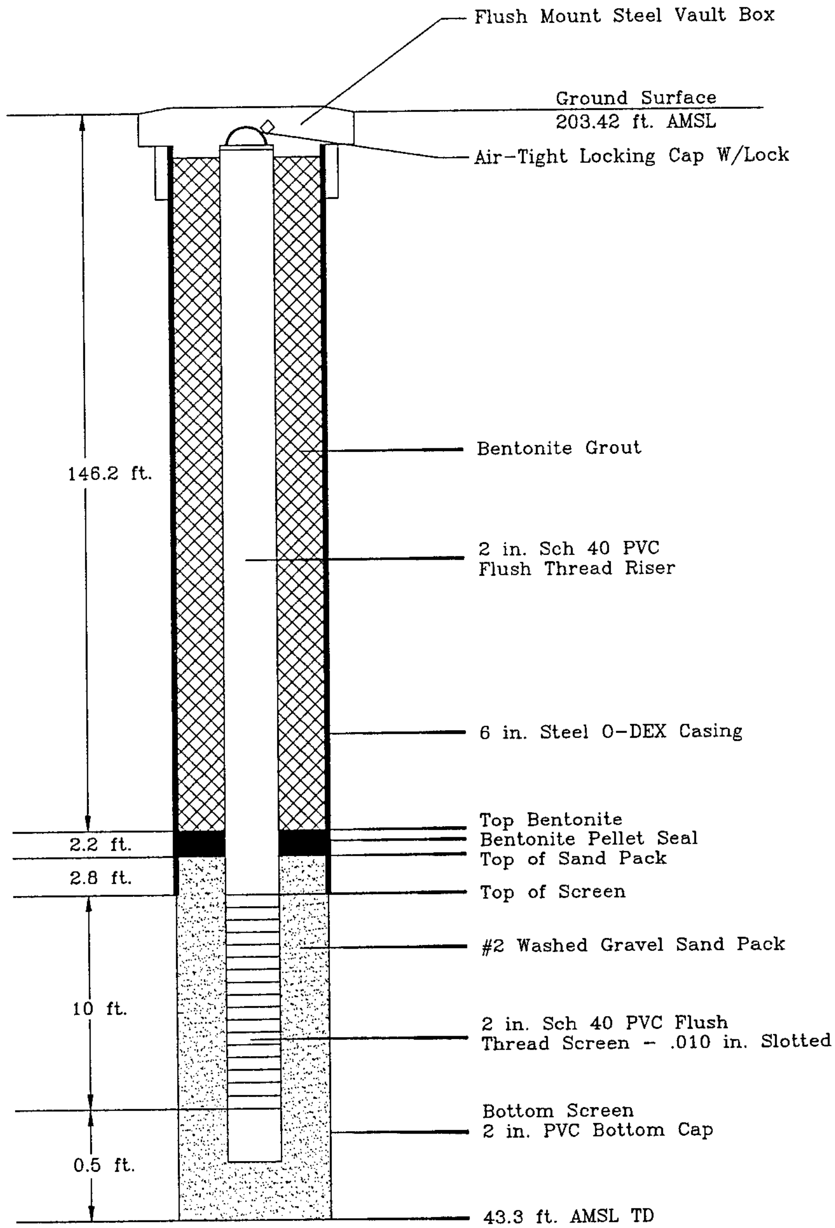
Project: Roslyn ANGS SI	Date Installed: April 22-25, 1994
Town/City: Roslyn	Drilling Contractor: Water Resources, Inc.
County: Nassau State: New York	Drilling Method: O-DEX
TOC Elev: 205.75 ft.	Borehole Diameter: 6 in.
Ground Elev.: 206.01 ft.	Development Technique: Not Developed
Water Level: 144.20 ft. TOC	
Total Well Depth: 46.0 ft.	Not To Scale



WELL CONSTRUCTION LOG
Well No. PS-2

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION
JULY 1994 ROSLYN\PS2

Project: Roslyn ANGS SI	Date Installed: April 26-27, 1994
Town/City: Roslyn	Drilling Contractor: Water Resources, Inc.
County: Nassau State: New York	Drilling Method: O-DEX
TOC Elev: 203.10 ft.	Borehole Diameter: 6 in.
Ground Elev.: 203.42 ft.	Development Technique: Not Developed
Water Level: 142.25 ft. TOC	
Total Well Depth: 43.3 ft.	Not To Scale



WELL CONSTRUCTION LOG
Well No. PS-3

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION
JULY 1994 ROSLYN\PS3

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APPENDIX D

FIELD GC SCREENING RESULTS

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SECTION D.1 INTRODUCTION

This section includes the raw Gas Chromatograph (GC) data generated during the field screening of soil samples collected during the drilling of boreholes, and of groundwater samples collected concurrently with groundwater sampling. Table D-1 summarize the GC screening results for soil and groundwater samples. Table D-2 indicates field GC results from soil cuttings obtained during piezometer and monitoring well drilling. A copy of all field GC chromatograms are also presented.

Table D-1
Field GC Results of Soil and Groundwater Samples
Roslyn ANGS, Roslyn, New York

Concentration: / Borehole/Interval (ft BLS)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	m,p-Xylene (ppb)	o-Xylene (ppb)	Total BTEX (ppb)	MTBE (ppb)
01-001BH 0.0 - 1.5	ND	ND	ND	ND	ND	ND	NC
01-001BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	NC
01-001BH 10.0 - 11.5	ND	169.9	ND	ND	ND	169.9	NC
01-002BH 0.5 - 2.0	ND	ND	ND	ND	ND	ND	26.36
01-002BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	ND
01-002BH 10.0 - 10.5	ND	ND	ND	ND	ND	ND	ND
01-002BH 10.0 - 10.5 Dup	ND	ND	ND	ND	ND	ND	ND
01-003BH 0.0 - 1.5	ND	ND	ND	ND	ND	ND	NC
01-003BH 6.5 - 8.0	ND	ND	ND	ND	ND	ND	NC
01-003BH 10.0 - 11.5	ND	ND	ND	ND	ND	ND	NC
01-004BH 0.0 - 1.5	35.73	ND	ND	ND	26.52	62.25	NC
01-004BH 5.0 - 6.5	NC	NC	NC	NC	NC	NC	NC
01-004BH 10.0 - 11.5	ND	2.73	ND	ND	ND	2.73	NC
02-001BH 0.0 - 1.5	ND	11.32	ND	ND	ND	11.32	NC
02-001BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	NC
02-001BH 10.0 - 11.5	ND	4.67	ND	ND	ND	4.67	NC
02-002BH 0.0 - 1.5	ND	1.54	1,098.0	ND	9,635.0	10,734.5	NC
02-002BH 5.0 - 6.5	*	*	*	*	*	*	NC
02-002BH 10.0 - 11.5	*	*	*	*	*	*	NC
02-003BH 0.5 - 2.0	ND	ND	ND	ND	ND	ND	ND
02-003BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	ND
02-003BH 10.0 - 11.5	ND	5.25	ND	ND	ND	5.25	ND
02-004BH 0.0 - 0.5	ND	39.33	ND	ND	27.50	66.83	NC
02-004BH 5.0 - 5.5	144.11	7,713.0	885.3	ND	1,554.0	10,296.41	NC
02-005BH 0.0 - 0.5	ND	6.12	ND	ND	ND	6.12	NC
02-005BH 5.0 - 5.5	276.63	2,526.8	531.3	ND	1,710.3	5,045.06	NC
02-006BH 0.0 - 0.5	ND	14.99	ND	ND	12.12	27.11	NC
02-006BH 5.0 - 5.5	ND	15.16	5.40	ND	12.77	33.33	NC
02-007BH 0.0 - 0.5	0.72	104.8	ND	ND	ND	105.5	NC
02-007BH 5.0 - 5.5	2.09	15.90	ND	ND	3.49	21.48	NC
02-008BH 0.0 - 0.5	0.85	ND	1.20	ND	ND	2.05	NC
02-008BH 5.0 - 5.5	ND	21.07	ND	ND	ND	21.07	NC
03-001BH 0.0 - 1.5	2.98	ND	2.49	ND	11.64	17.12	NC
03-001BH 5.0 - 6.5	ND	3.45	ND	ND	ND	3.45	NC
03-001BH 10.0 - 11.5	ND	ND	ND	ND	ND	ND	NC
03-002BH 0.0 - 1.5	ND	3.18	ND	ND	ND	3.18	NC
03-002BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	NC
03-002BH 10.0 - 11.5	ND	ND	3.35	ND	ND	3.35	NC

Table D-1 (Concluded)
Field GC Results of Soil and Groundwater Samples
Roslyn ANGS, Roslyn, New York

Concentration: Borehole/Interval (ft BLS)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	m,p-Xylene (ppb)	o-Xylene (ppb)	Total BTEX (ppb)	MTBE (ppb)
03-003BH 0.0 - 1.5	ND	ND	ND	ND	ND	ND	ND
03-003BH 5.0 - 6.5	ND	ND	5.43	ND	ND	5.43	NC
03-003BH 10.0 - 11.5	ND	ND	ND	ND	ND	ND	ND
03-004BH 0.0 - 1.5	ND	ND	12.61	ND	4.78	17.39	NC
03-004BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	NC
03-004BH 10.0 - 11.5	ND	ND	4.09	ND	ND	4.09	NC
03-004BH 10.0 - 11.5 Dup	ND	164.2	ND	ND	ND	164.2	NC
03-005BH 0.5 - 2.0	ND	ND	ND	ND	ND	ND	ND
03-005BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	ND
03-005BH 10.0 - 11.5	ND	ND	ND	ND	ND	ND	ND
03-006BH 0.0 - 1.5	ND	4.22	17.11	ND	37.61	58.94	NC
03-006BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	NC
03-006BH 10.0 - 11.5	ND	ND	ND	ND	ND	ND	NC
BG-001BH 0.0 - 1.5	ND	ND	ND	ND	ND	ND	ND
BG-001BH 5.0 - 6.5	ND	ND	ND	ND	ND	ND	ND
BG-001BH 10.0 - 11.5	ND	ND	ND	ND	ND	ND	ND
01-001MW	ND	ND	ND	ND	ND	ND	NC
02-001MW	ND	ND	12.0	ND	ND	12.0	NC
03-001MW	ND	ND	ND	ND	ND	ND	NC

GC – Gas Chromatograph.
BTEX – Benzene, Toluene, Ethylbenzene, and Xylenes.
MTBE – Methyl-t-butyl-ether.
ft BLS – feet Below Land Surface.
ppb – parts per billion.
BH – Borehole.
BG – Background sample.
MW – Monitoring Well.
Dup – Duplicate sample.
ND – Analyte not detected.
NC – Analysis not conducted.
* – Analyte concentrations exceeded the maximum calibration range for the field GC and individual analytes were not identified.

Table D-2
Field GC Results During Piezometers/Monitoring Well Installation
Roslyn ANGS, Roslyn, New York

Concentration: Well ID/Interval (ft BLS)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)	Total BTEX (ppb)	MTBE (ppb)
PZ-1-A	ND	ND	ND	ND	ND	ND
PZ-1-B	ND	ND	ND	ND	ND	ND
PZ-1-C	ND	ND	ND	ND	ND	ND
PZ-Drum A Composite	ND	ND	ND	ND	ND	ND
PZ-Drum B Composite	ND	ND	ND	ND	ND	ND
PZ-Drum C Composite	ND	ND	ND	ND	ND	ND
PZ-1 Retest A	ND	ND	ND	ND	ND	51.87
PZ-1 Retest B	ND	ND	ND	ND	ND	ND
PZ-1 Retest C	ND	ND	ND	ND	ND	ND
PZ-1 Retest D	ND	ND	ND	ND	ND	ND
PZ-1 A	ND	10.49	ND	24.56	35.05	ND
PZ-1 B	ND	8.25	ND	24.64	32.89	ND
PZ-1 C	ND	ND	ND	ND	ND	ND
PZ-1 D	ND	ND	ND	ND	ND	ND
Existing Dirt	26.22	27.16	18.42	34.12	105.92	ND
Pile Dirt	ND	18.58	23.27	37.36	79.21	ND
Pile Dirt	ND	ND	ND	9.39	9.39	ND
Pile Dirt	ND	ND	ND	ND	ND	ND
PZ-2 15	ND	6.63	8.33	20.79	35.76	ND
PZ-2 30	ND	ND	ND	ND	ND	ND
PZ-2 30 Dup	14.00	40.72	30.15	57.24	142.11	ND
PZ-2 45	ND	ND	22.62	ND	22.62	ND
PZ-2 60	ND	ND	ND	ND	ND	ND
PZ-2 75	ND	ND	ND	ND	ND	ND
PZ-2 160	ND	ND	ND	5.24	5.24	ND
PZ-3 15	ND	ND	ND	ND	ND	ND
PZ-3 30	ND	ND	ND	ND	ND	ND
PZ-3 45	16.12	37.17	27.39	54.38	135.06	ND
PZ-3 60	ND	6.58	ND	4.13	10.71	ND
PZ-3 90	ND	13.23	30.02	60.95	104.21	ND
PZ-3 105	ND	ND	16.67	ND	16.67	ND
PZ-3 155	ND	ND	ND	ND	ND	ND
(01-001MW)						
MW-1 8	ND	ND	ND	ND	ND	ND
MW-1 45	ND	ND	ND	ND	ND	ND
MW-1 75	ND	ND	ND	ND	ND	ND
MW-1 100	ND	ND	ND	18.89	18.89	ND
MW-1 120	ND	ND	ND	ND	ND	161.0
MW-1 140	ND	ND	ND	ND	ND	616.7
MW-1 155	ND	ND	ND	ND	ND	ND

Table D-2 (Concluded)
Field GC Results During Piezometers/Monitoring Well Installation
Roslyn ANGS, Roslyn, New York

Concentration: / Well ID/Interval (ft BLS)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)	Total BTEX (ppb)	MTBE (ppb)
03-001MW 15	ND	ND	ND	ND	ND	ND
03-001MW 35	ND	ND	ND	ND	ND	ND
03-001MW 55	ND	ND	ND	ND	ND	36.20
03-001MW 80	ND	ND	ND	ND	ND	11.31
03-001MW 80 Dup	ND	ND	ND	ND	ND	51.13
03-001MW 100	ND	ND	ND	ND	ND	29.50
03-001MW 140	ND	ND	ND	ND	ND	69.94
03-001MW 153	ND	ND	ND	ND	ND	3.82
02-001MW 30	ND	ND	ND	ND	ND	ND
02-001MW 50	ND	ND	ND	ND	ND	ND
02-001MW 85	ND	ND	ND	ND	ND	ND
02-001MW 100	ND	ND	ND	ND	ND	394.7
02-001MW 130	ND	ND	ND	ND	ND	79.22
02-001MW 145	ND	ND	ND	ND	ND	ND
02-001MW 155	ND	ND	ND	ND	ND	9.2
02-001MW 155 Dup	ND	ND	ND	ND	ND	21.52
Water						
01-001MW	ND	ND	ND	ND	ND	ND
02-001MW	ND	ND	12.00	ND	12.00	ND
03-001MW	ND	ND	ND	ND	ND	ND

GC – Gas Chromatograph.
BTEX – Benzene, Toluene, Ethylbenzene, and Xylenes.
MTBE – Methyl-t-butyl-ether.
ft BLS – feet Below Land Surface.
PZ – Piezometer Well.
MW – Monitoring Well.
Dup – Duplicate sample.
ND – Analyte not detected.
ppb – parts per billion.

Notes:
- PZ-1 analyses not identified by interval. GC analysis conducted from grab samples obtained from drummed cuttings.
- Existing dirt and dirt pile analysis conducted on fill dirt before piezometer/monitoring well soil cuttings were deposited.
- Numbers following well identification (with the exception of PZ-1) indicate interval (in feet BLS) from which the sample was obtained.

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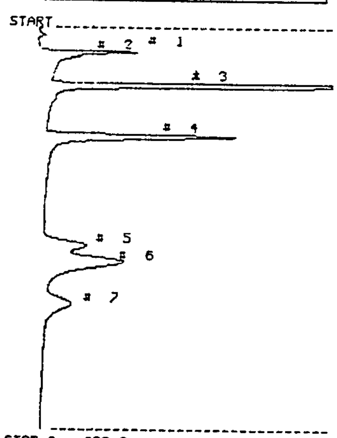
Values stored in Library

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
BENZENE	1	78.1	1.000 PPM
TOLUENE	2	135.6	1.000 PPM
ETHYLBENZENE	3	243.0	1.000 PPM
O-XYLENE	4	278.7	1.000 PPM

PHOTOVAC

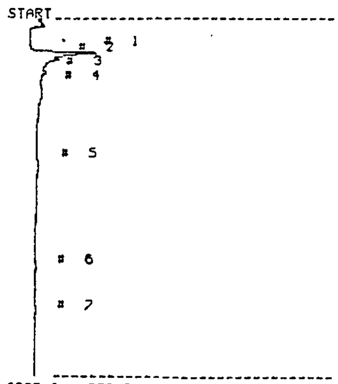


STOP @ 630.0
SAMPLE LIBRARY 1 SEP 21 1993 21:12
ANALYSIS # 2
INTERNAL TEMP 27
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	39.2	1.5 US
UNKNOWN	2	46.7	460.2 mUS
UNKNOWN	3	91.7	11.9 US
UNKNOWN	4	176.2	5.4 US
UNKNOWN	5	350.2	2.3 US
UNKNOWN	6	376.2	6.1 US
UNKNOWN	7	442.4	2.3 US

CALIBRANT

PHOTOVAC

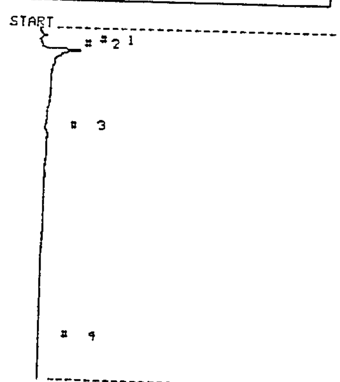


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 21:29
ANALYSIS # 3
INTERNAL TEMP 27
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	54.1	1.2 US
UNKNOWN	2	63.7	304.1 mUS
BENZENE	3	84.7	2.984 PPB
UNKNOWN	4	106.0	5.7 mUS
UNKNOWN	5	226.8	31.9 mUS
ETHYLBENZENE	6	390.2	2.491 PPB
O-XYLENE	7	460.4	11.64 PPB

03-001
Depth 0-1.5'

PHOTOVAC



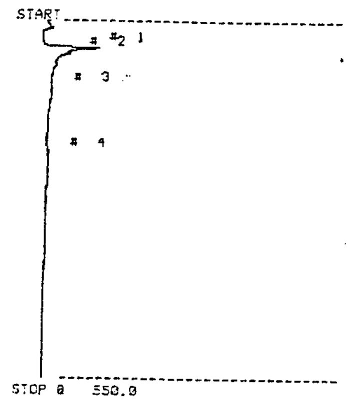
STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 21:39
ANALYSIS # 4
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	36.2	221.5 mUS
UNKNOWN	2	42.9	5.9 mUS
TOLUENE	3	170.2	3.449 PPB
UNKNOWN	4	520.5	11.8 mUS

03-001 BH
Depth 5.0-6.5

Bottle D
03-001 Depth 10-11.5'

PHOTOVAC

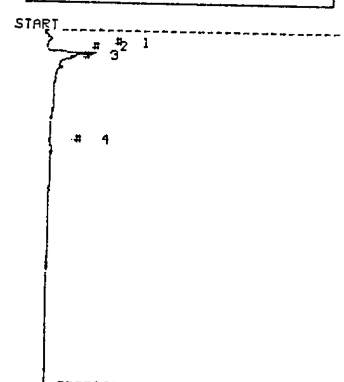


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 22: 0
ANALYSIS # 6
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	43.7	862.3 mUS
UNKNOWN	2	51.3	239.7 mUS
UNKNOWN	4	205.8	18.8 mUS

Bottle D
03-002 Depth: 0-1.5'

PHOTOVAC

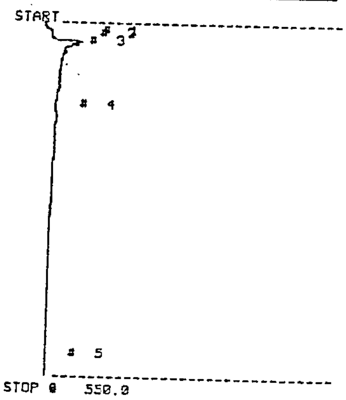


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 22:11
ANALYSIS # 7
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	35.7	316.9 mUS
UNKNOWN	2	43.3	20.2 mUS
UNKNOWN	3	58.3	28.5 mUS
TOLUENE	4	187.2	3.178 PPB

Bottle E
03-002 Depth 5.0-6.5'

PHOTOVAC

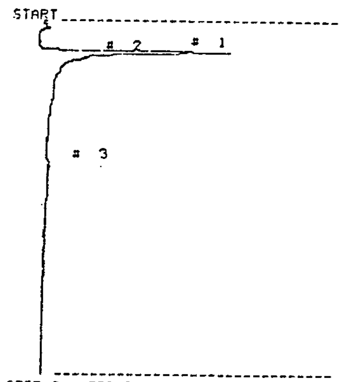


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 22:46
ANALTSIS # 8
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.7	79.4 mUS
UNKNOWN	2	34.2	14.9 mUS
UNKNOWN	3	45.9	10.0 mUS
UNKNOWN	4	144.4	19.0 mUS
UNKNOWN	5	532.7	23.0 mUS

03-003 'Depth 0-1.5'
Bottle G

PHOTOVAC

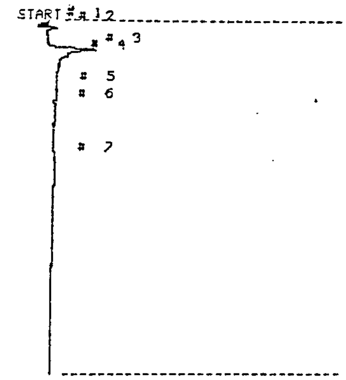


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 23:10
ANALYSIS # 10
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	50.1	3.2 US
UNKNOWN	2	58.9	656.9 mUS
UNKNOWN	3	225.6	28.4 mUS

03-003 Depth 10.0-11.5'
Bottle I

PHOTOVAC

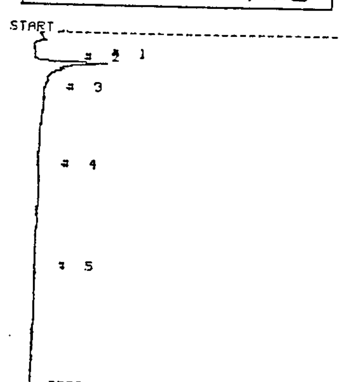


STOP @ 552.2
SAMPLE LIBRARY 1 SEP 21 1993 23:33
ANALTSIS # 12
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	7.5	13.9 mUS
UNKNOWN	2	12.7	59.2 mUS
UNKNOWN	3	46.9	595.6 mUS
UNKNOWN	4	54.3	9.4 mUS
UNKNOWN	6	132.4	15.0 mUS
UNKNOWN	7	214.2	15.0 mUS

03-002 Bottle F
Depth: 10.0-11.5

PHOTOVAC

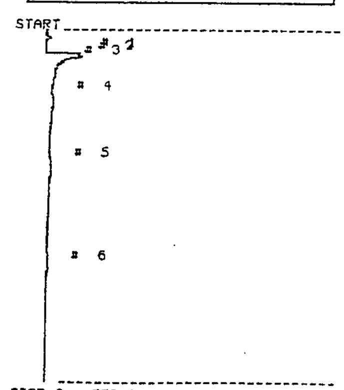


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 22:58
ANALYSIS # 9
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	50.3	1.3 US
UNKNOWN	2	59.3	338.4 mUS
UNKNOWN	4	225.6	18.8 mUS
ETHYLBENZENE	5	386.2	3.346 PPB

03-003 Depth: 5.0-6.5
Bottle H

PHOTOVAC

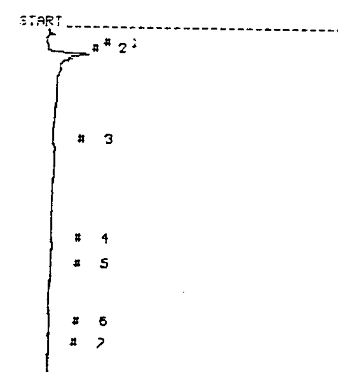


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 23:21
ANALYSIS # 11
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	38.3	72.3 mUS
UNKNOWN	2	45.7	5.4 mUS
UNKNOWN	3	51.9	6.7 mUS
UNKNOWN	5	212.4	14.1 mUS
ETHYLBENZENE	6	373.2	5.434 PPB

03-004 Depth: 0-1.5'
Bottle J

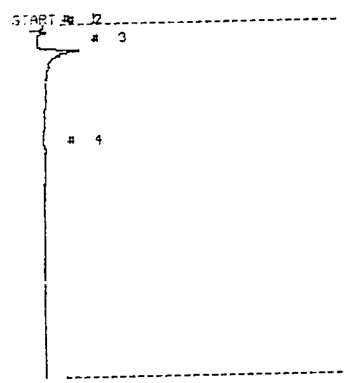
PHOTOVAC



STOP @ 550.2
SAMPLE LIBRARY 1 SEP 21 1993 23:44
ANALYSIS # 13
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	44.3	396.7 mUS
UNKNOWN	2	52.3	12.7 mUS
UNKNOWN	3	198.2	18.1 mUS
ETHYLBENZENE	4	352.0	10.65 PPB
ETHYLBENZENE	5	391.2	1.932 PPB
O-XYLENE	6	483.6	4.778 PPB
UNKNOWN	7	517.4	14.2 mUS

PHOTOVAC

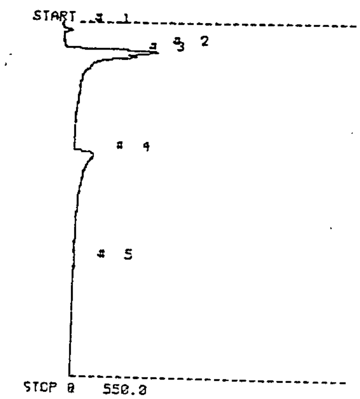


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 21 1993 23:57
ANALYSIS # 14
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	10.1	14.4 mVS
UNKNOWN	2	11.9	5.5 mVS
UNKNOWN	3	42.1	450.9 mVS
UNKNOWN	4	200.4	32.7 mVS

03-004 Depth 5.0-6.5'
Bottle K

PHOTOVAC

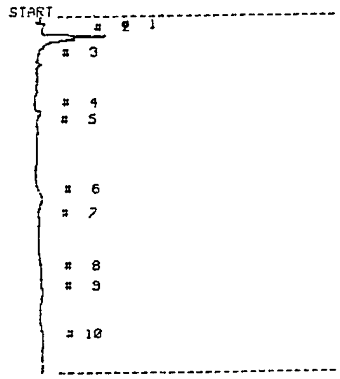


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 0:7
ANALYSIS # 15
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.7	17.3 mUS
UNKNOWN	2	47.3	2.5 US
UNKNOWN	3	54.9	1.1 US
UNKNOWN	4	211.9	1.1 US
ETHYLBENZENE	5	379.2	4.087 PPB

03-004 Depth 10.0-11.5'
Bottle L

PHOTOVAC

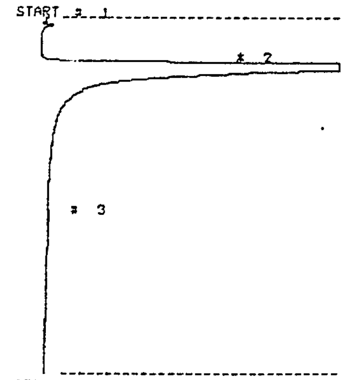


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 0:28
ANALYSIS # 17
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.1	517.5 mUS
UNKNOWN	2	36.2	59.7 mUS
UNKNOWN	3	74.7	33.7 mUS
UNKNOWN	4	131.6	123.0 mUS
TOLUENE	5	179.2	4.218 PPB
UNKNOWN	6	256.7	333.7 mUS
UNKNOWN	7	323.2	36.5 mUS
ETHYLBENZENE	8	404.7	17.11 PPB
O-XYLENE	9	434.4	37.61 PPB
UNKNOWN	10	508.3	156.3 mUS

03-006 Bottle
Depth 0-1.5 N

PHOTOVAC

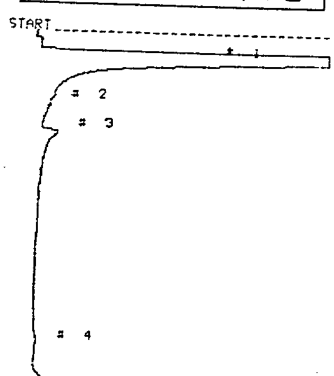


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 0:49
ANALYSIS # 19
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.4	19.6 mUS
UNKNOWN	2	77.1	53.5 US
UNKNOWN	3	316.3	42.8 mUS

03-006 Vial
Depth: 10.0-11.5' P

PHOTOVAC

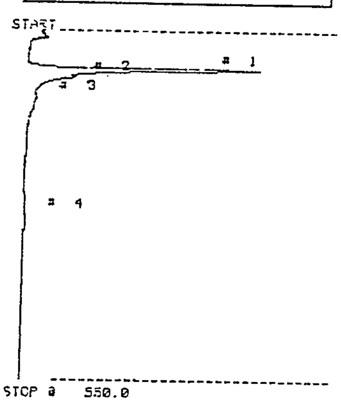


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 0:18
ANALYSIS # 16
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	39.2	64.0 US
TOLUENE	3	164.2	144.0 PPB
UNKNOWN	4	503.1	205.9 mUS

03-004 DuplicateBottle
Depth 10-11.5' M

PHOTOVAC

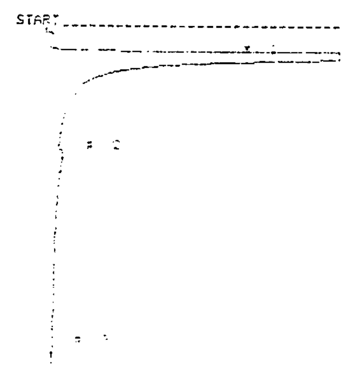


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 0:39
ANALYSIS # 18
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	62.1	4.9 US
UNKNOWN	2	74.3	1.2 US
UNKNOWN	3	105.1	6.6 mUS
UNKNOWN	4	293.9	73.7 mUS

03-006 Bial "O"
Depth: 5.0-6.5

PHOTOVAC

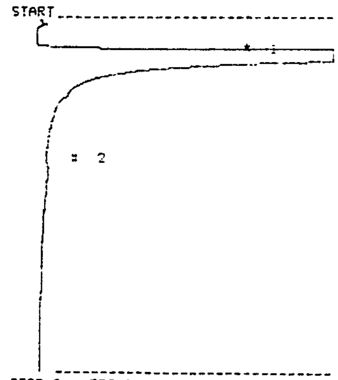


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 0:59
ANALYSIS # 20
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	46.1	49.9 US
UNKNOWN	2	226.5	109.3 mUS
UNKNOWN	3	516.1	19.1 mUS

01-001 BH Bottle A
Depth: 0-1.5'

PHOTOVAC

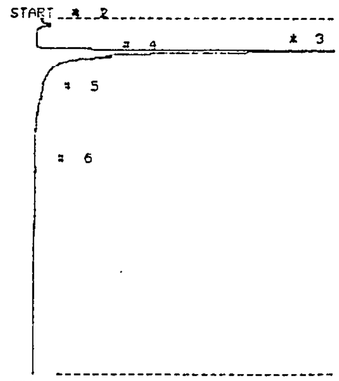


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 1: 9
ANALYSIS # 21
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	59.3	62.3 US
UNKNOWN	2	238.8	46.0 mUS

01-001 BH Vial B
Depth: 5.0-6.5

PHOTOVAC

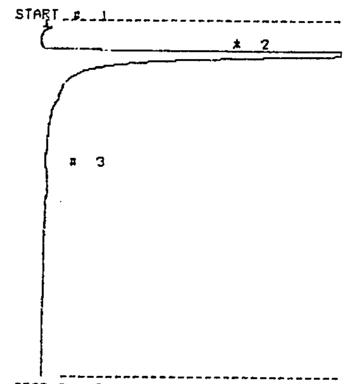


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 1:29
ANALYSIS # 23
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	9.6	16.9 mUS
UNKNOWN	3	50.9	7.0 US
UNKNOWN	4	61.1	1.5 US
UNKNOWN	6	236.4	13.2 mUS

01-003 BH Vial
Depth 0.0-1.5' D

PHOTOVAC

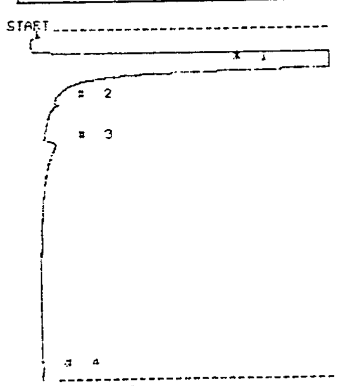


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 1:49
ANALYSIS # 25
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.6	20.6 mUS
UNKNOWN	2	51.3	30.9 US
UNKNOWN	3	238.8	24.7 mUS

01-003 BH , Vial
Depth: 10.0-11.5 F

PHOTOVAC

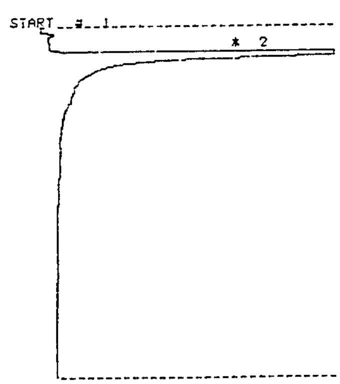


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 1:19
ANALYSIS # 22
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	50.5	162.3 US
UNKNOWN	2	121.2	40.3 mUS
TOLUENE	3	186.2	169.9 PPB

01-001 BH , Bottle
Depth: 10.0-11.5 C

PHOTOVAC

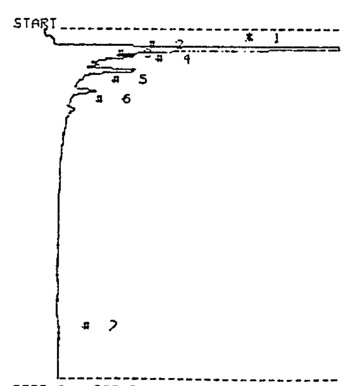


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 1:39
ANALYSIS # 24
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	38.2 mUS
UNKNOWN	2	44.0	20.0 US

01-003BH , Vial
Depth: 6.5- 8.5' E

PHOTOVAC

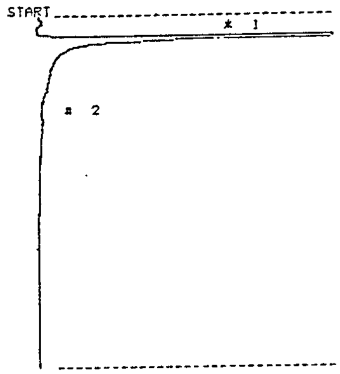


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 1:59
ANALYSIS # 26
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	23.5	13.8 US
UNKNOWN	2	44.1	1.3 US
UNKNOWN	3	57.3	48.4 mUS
UNKNOWN	4	65.3	540.5 mUS
BENZENE	5	120.2	35.73 PPB
UNKNOWN	6	130.4	172.0 mUS
O-XYLENE	7	487.5	26.52 PPB

01-004 BH Vial
Depth: 0-1.5' G

PHOTOVAC

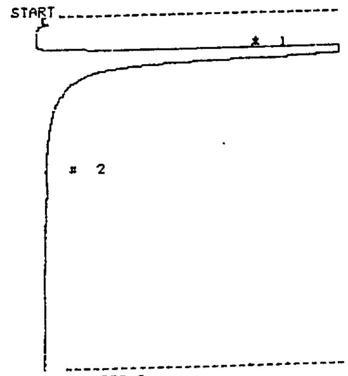


STOP @ 552.0
SAMPLE LIBRARY 1 SEP 22 1993 2: 9
ANALYSIS # 27
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	34.4	8.3 US
TOLUENE	2	167.7	2.732 PPB

01-004BH Vial H
Depth 10-11.5

PHOTOVAC

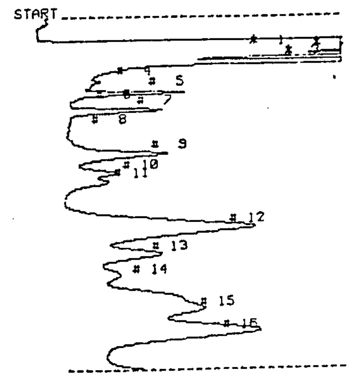


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 2:29
ANALYSIS # 29
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	60.7	44.5 US
UNKNOWN	2	259.8	10.9 mUS

02-002BH Vial J
Depth: 5.0-6.5'

PHOTOVAC

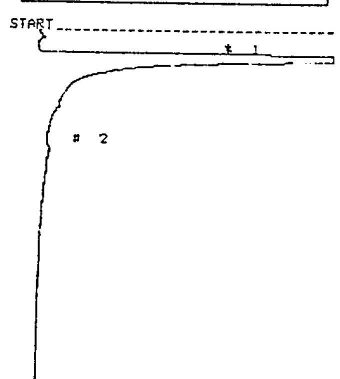


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 2:49
ANALYSIS # 31
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	47.8	87.0 US
UNKNOWN	2	61.4	7.2 US
UNKNOWN	3	72.1	11.2 US
UNKNOWN	4	102.7	61.9 mUS
UNKNOWN	5	120.8	1.6 US
UNKNOWN	7	148.4	1.8 US
TOLUENE	8	173.2	1.544 PPB
UNKNOWN	9	218.4	4.5 US
UNKNOWN	10	249.3	2.0 US
UNKNOWN	11	263.3	1.5 US
UNKNOWN	12	336.7	17.7 US
ETHYLBENZENE	13	378.2	[illegible]
O-XYLENE	14	412.4	[illegible]
O-XYLENE	15	466.4	[illegible]
UNKNOWN	16	501.3	22.0 US

02-002BH Vial S
Depth: 0-1.5'

PHOTOVAC

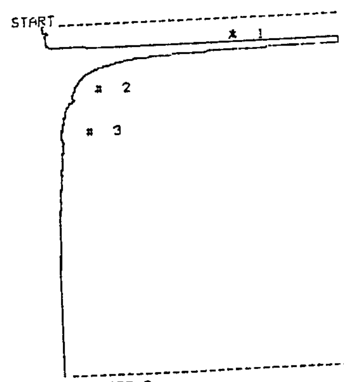


STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 2:19
ANALYSIS # 28
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	41.8	41.9 US
TOLUENE	2	186.7	11.32 PPB

02-002BH Vial I
Depth: 0-1.5'

PHOTOVAC



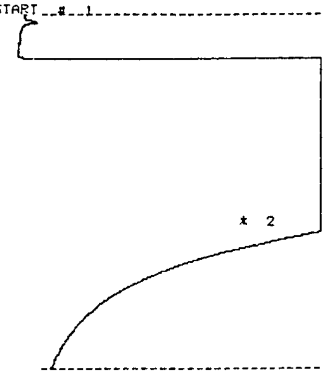
STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 2:39
ANALYSIS # 30
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	42.0	35.4 US
UNKNOWN	2	120.0	31.3 mUS
TOLUENE	3	186.2	4.666 PPB

02-002BH Vial K
Depth 11.5-13

PHOTOVAC

START # 1



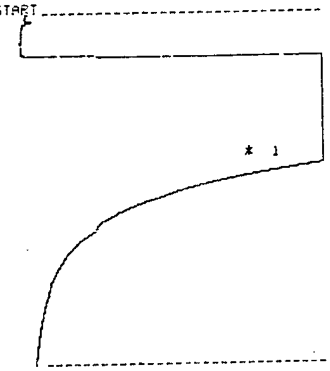
STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 3: 1
ANALYSIS # 32
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.4	83.4 mUS

02-002 Vial
Depth: 5.0-6.5 T

PHOTOVAC

START



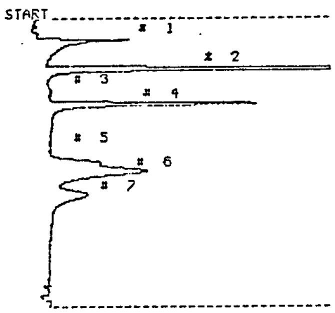
STOP @ 550.0
SAMPLE LIBRARY 1 SEP 22 1993 3:13
ANALYSIS # 33
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	135.1	4.2 mUS

02-002 Vial
Depth: 10-11.5 W

CALIBRATION SHOT

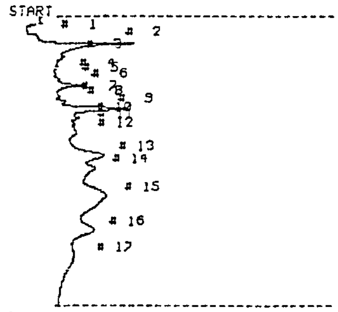
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 14:52
ANALYSIS # 6
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	33.2	722.4 mUS
BENZENE	2	76.1	257.0 PPB
BENZENE	3	114.4	2.704 PPB
UNKNOWN	4	135.5	3.8 US
TOLUENE	5	204.3	1.134 PPB
UNKNOWN	6	243.0	6.7 US
UNKNOWN	7	278.7	2.2 US

PHOTOVAC

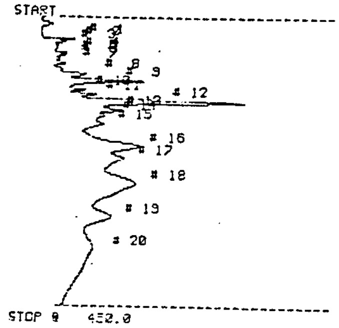


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 15:37
ANALYSIS # 8
INTERNAL TEMP 31
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.6	42.8 mUS
UNKNOWN	2	44.3	767.4 mUS
UNKNOWN	3	63.3	14.6 mUS
BENZENE	4	91.3	0.760 PPB
UNKNOWN	5	120.0	21.4 mUS
UNKNOWN	6	103.6	573.2 mUS
TOLUENE	7	127.2	3.513 PPB
TOLUENE	8	135.6	35.56 PPB
TOLUENE	9	146.8	458.6 PPB
TOLUENE	10	162.2	133.4 PPB
UNKNOWN	11	171.2	334.8 mUS
UNKNOWN	12	184.2	662.6 mUS
ETHYLBENZENE	13	221.4	263.3 PPB
ETHYLBENZENE	14	241.6	231.1 PPB
O-XYLENE	15	284.3	1.860 PPM
O-XYLENE	16	337.6	664.9 PPB

02-004 Bottle
Depth 3.5 F

PHOTOVAC



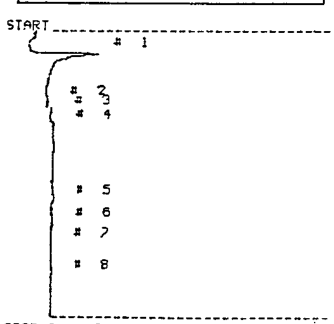
STOP @ 452.0
SAMPLE LIBRARY 1 SEP 24 1993 16: 7
ANALYSIS # 9
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	36.2	103.7 mUS
UNKNOWN	2	40.3	21.0 mUS
UNKNOWN	3	46.7	5.7 mUS
UNKNOWN	4	58.9	105.7 mUS
UNKNOWN	5	62.1	55.9 mUS
BENZENE	6	67.3	1.552 PPB
BENZENE	7	75.3	13.25 PPB
BENZENE	8	90.2	78.41 PPB
UNKNOWN	9	122.7	1.5 US
TOLUENE	10	117.1	25.25 PPB
TOLUENE	11	125.2	84.14 PPB
TOLUENE	12	135.6	1.026 PPM
TOLUENE	13	143.6	316.2 PPB
TOLUENE	14	157.6	240.7 PPB
UNKNOWN	15	171.2	1.3 US
ETHYLBENZENE	16	226.4	622.6 PPB
ETHYLBENZENE	17	225.5	518.5 PPB
O-XYLENE	18	265.4	3.271 PPM
O-XYLENE	19	317.1	1.376 PPM

02-004 Bottle
Depth 4' G

02-004 Depth 0.0-0.5'
BOTTLE E

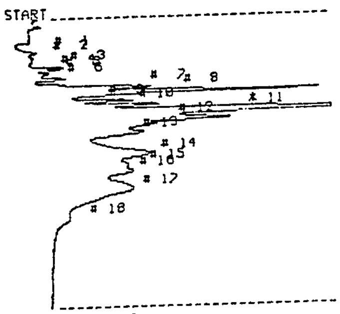
PHOTOVAC



STOP @ 452.0
SAMPLE LIBRARY 1 SEP 24 1993 15:23
ANALYSIS # 7
INTERNAL TEMP 30
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	37.2	634.4 mUS
TOLUENE	2	114.1	10.58 PPB
TOLUENE	3	125.2	13.04 PPB
TOLUENE	4	143.2	3.712 PPB
O-XYLENE	5	263.5	22.61 PPB
O-XYLENE	6	305.3	4.962 PPB
UNKNOWN	8	386.1	31.9 mUS

PHOTOVAC

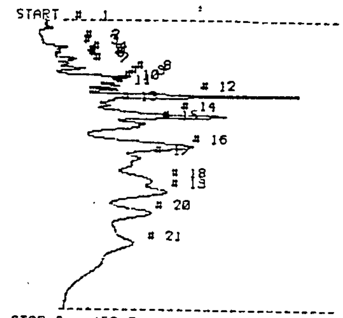


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 16:36
ANALYSIS # 11
INTERNAL TEMP 29
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	52.9	170.4 mUS
UNKNOWN	2	61.5	24.3 mUS
BENZENE	3	78.1	29.87 PPB
BENZENE	4	82.3	30.33 PPB
BENZENE	5	87.7	30.39 PPB
BENZENE	6	96.4	53.32 PPB
UNKNOWN	7	111.4	2.9 VS
TOLUENE	8	118.9	1.410 PPM
TOLUENE	9	132.2	438.9 PPB
TOLUENE	10	140.4	610.1 PPB
TOLUENE	11	149.4	3.629 PPM
TOLUENE	12	164.2	1.625 PPM
UNKNOWN	13	184.7	304.4 mUS
ETHYLBENZENE	14	219.4	434.3 PPB
ETHYLBENZENE	15	235.8	163.8 PPB
ETHYLBENZENE	16	246.5	236.5 PPB
O-XYLENE	17	273.8	1.554 PPM

~~0~~02-004 Vial
Depth 5' I

PHOTOVAC

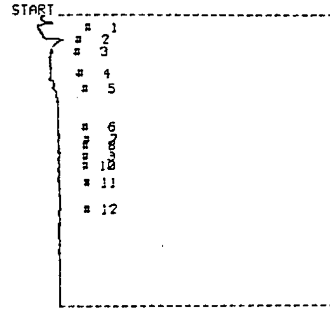


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 17: 8
ANALYSIS # 13
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.4	16.2 mUS
UNKNOWN	2	41.7	95.8 mUS
UNKNOWN	3	47.5	7.5 mUS
UNKNOWN	4	59.3	191.0 mUS
UNKNOWN	5	62.3	132.0 mUS
BENZENE	6	66.9	11.75 PPB
BENZENE	7	74.7	21.78 PPB
BENZENE	8	87.7	117.4 PPB
BENZENE	9	94.3	126.1 PPB
UNKNOWN	10	101.2	1.0 VS
UNKNOWN	11	108.1	955.4 mUS
TOLUENE	12	117.1	1.124 PPM
TOLUENE	13	134.0	20.83 PPB
TOLUENE	14	152.4	882.3 PPB
TOLUENE	15	164.7	499.1 PPB
UNKNOWN	16	201.2	5.5 VS
ETHYLBENZENE	17	220.8	302.7 PPB
ETHYLBENZENE	18	257.0	228.6 PPB
O-XYLENE	19	273.8	950.3 PPB
O-XYLENE	20	307.5	760.0 PPB

02-005, Vial
Depth 5ft P

PHOTOVAC

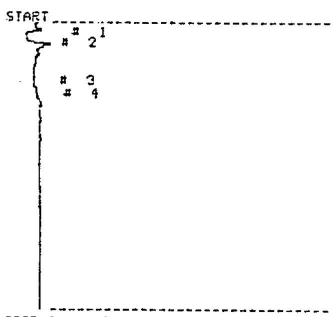


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 17:39
ANALYSIS # 16
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	39.9	141.7 mUS
UNKNOWN	4	112.0	69.6 mUS
TOLUENE	5	135.2	15.16 PPB
UNKNOWN	6	194.2	25.8 mUS
ETHYLBENZENE	8	223.8	2.226 PPB
ETHYLBENZENE	9	239.5	0.986 PPB
ETHYLBENZENE	10	254.9	2.189 PPB
O-XYLENE	11	281.9	9.090 PPB
O-XYLENE	12	323.2	3.675 PPB

02-006
5 FT
ViAl
R

PHOTOVAC

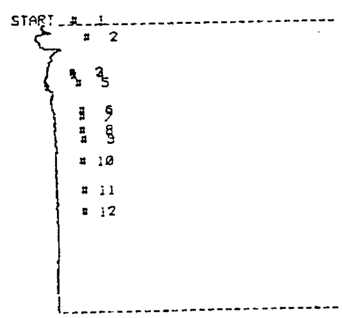


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 16:52
ANALYSIS # 12
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	33.6	51.7 mUS
UNKNOWN	2	50.1	17.8 mUS
UNKNOWN	3	111.1	38.4 mUS
TOLUENE	4	179.6	6.115 PPB

02-005 Vial
Depth 0.0-0.5' J

PHOTOVAC

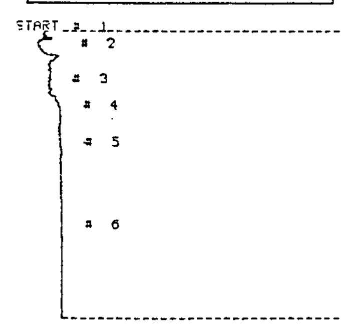


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 17:17
ANALYSIS # 14
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.9	53.5 mUS
UNKNOWN	2	38.3	143.8 mUS
UNKNOWN	5	111.1	110.9 mUS
TOLUENE	6	153.6	14.83 PPB
UNKNOWN	8	186.2	17.4 mUS
UNKNOWN	9	193.2	22.9 mUS
O-XYLENE	12	311.5	10.12 PPB

02-006 Vial
Depth: 0.0-0.5 ft Q

PHOTOVAC

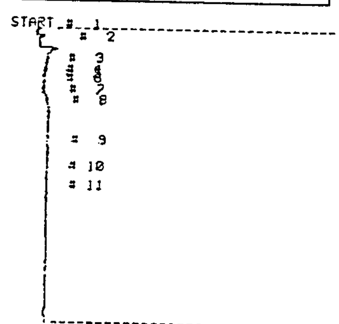


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 17:51
ANALYSIS # 17
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.2	41.0 mUS
UNKNOWN	2	29.3	47.2 mUS
BENZENE	3	99.4	0.712 PPB
TOLUENE	4	136.3	104.3 PPB
UNKNOWN	5	192.7	16.2 mUS

02-007 Vial
Depth 0.0-0.5 FT S

PHOTOVAC

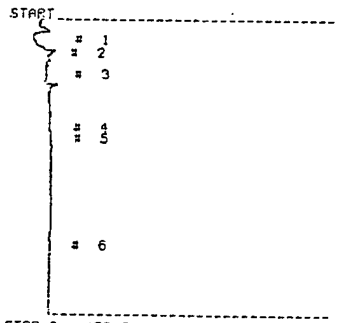


STOP @ 450.0
SAMPLE LIBRARY 1 SEP 24 1993 18: 3
ANALYSIS # 18
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	14.4 mUS
UNKNOWN	2	32.3	35.2 mUS
BENZENE	3	65.1	2.569 PPB
BENZENE	4	82.3	0.980 PPB
BENZENE	5	98.1	0.535 PPB
TOLUENE	7	113.2	12.33 PPB
TOLUENE	8	129.2	3.373 PPB
O-XYLENE	11	261.2	3.485 PPB

02-007
Depth 5.0-5.5 FT
Vial V

PHOTOVAC

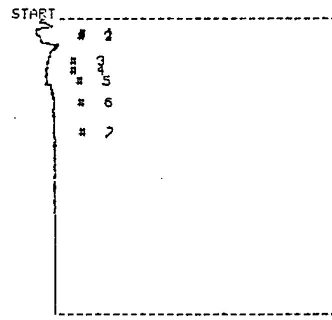


STOP @ 450.3
SAMPLE LIBRARY 1 SEP 24 1993 18:13
ANALYSIS # 19
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	51.7	89.2 mUS
BENZENE	2	73.3	0.853 PPB
UNKNOWN	3	105.1	116.0 mUS
UNKNOWN	4	188.7	13.8 mUS
ETHYLBENZENE	5	204.3	1.197 PPB
UNKNOWN	6	364.2	10.7 mUS

02-008
Depth 0.0-0.5 FT
Vial W

PHOTOVAC

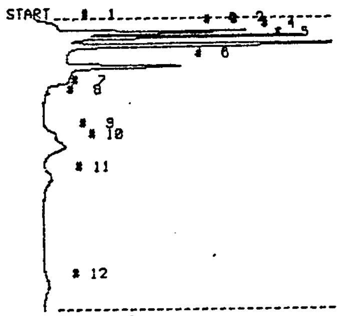


STOP @ 450.2
SAMPLE LIBRARY 1 SEP 24 1993 18:23
ANALYSIS # 20
INTERNAL TEMP 28
GAIN 10

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	41.3	16.5 mUS
UNKNOWN	2	45.9	7.2 mUS
TOLUENE	5	114.7	18.30 PPB
TOLUENE	6	143.6	2.766 PPB
UNKNOWN	7	194.2	17.0 mUS

02-008
Depth 5FT
Vial Y

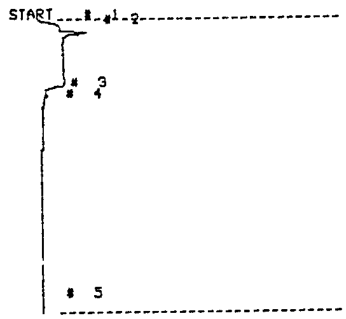
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 15:50
ANALYSIS # 33 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.3	158.6 mVS
UNKNOWN	2	20.5	1.3 VS
UNKNOWN	3	22.9	1.3 VS
UNKNOWN	4	29.2	2.4 VS
UNKNOWN	5	41.1	5.9 VS
UNKNOWN	6	75.2	1.8 VS
UNKNOWN	7	115.7	11.2 mVS
UNKNOWN	9	184.1	51.5 mVS
ETHYLBENZENE	10	200.7	3.529 PPM
UNKNOWN	11	250.1	441.6 mVS
UNKNOWN	12	412.5	470.7 mVS

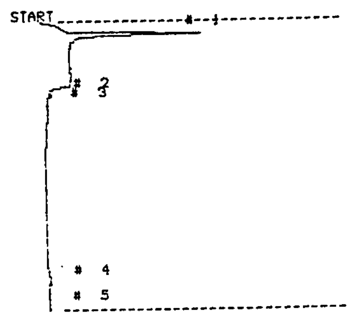
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 16:11
ANALYSIS # 35 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 BC-02IEH 2-1.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.3	160.7 mVS
UNKNOWN	2	20.6	265.1 mVS
UNKNOWN	3	116.4	11.0 mVS

PHOTOVAC



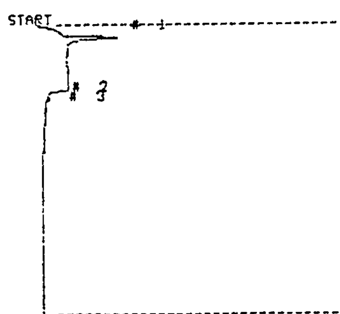
STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 16:28
ANALYSIS # 37 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 BP-20IFH ~~2-1.5~~
10.0-11.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.2	1.9 VS
UNKNOWN	2	115.6	10.5 mVS
UNKNOWN	4	406.9	146.9 mVS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	29.2	1.000 PPM
BENZENE	2	41.1	1.000 PPM
TOLUENE	3	75.2	1.000 PPM
ETHYLBENZENE	4	184.1	1.000 PPM
MP XYLENE	5	200.7	1.000 PPM
O XYLENE	6	250.1	1.000 PPM

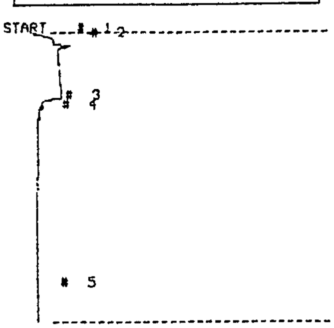
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 16:20
ANALYSIS # 36 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 B -22IPH ~~8-1.5~~
5.0-6.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.2	1.2 VS
UNKNOWN	2	115.5	11.2 mVS

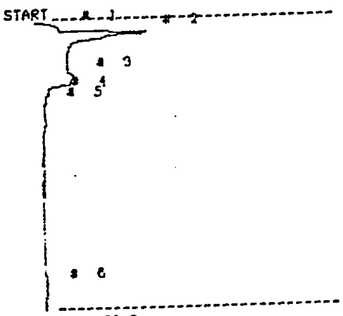
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 16: 3
ANALYSIS # 34 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	163.8 mVS
UNKNOWN	2	20.7	137.2 mVS
UNKNOWN	3	115.6	12.4 mVS

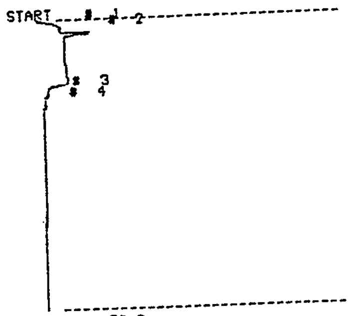
PHOTOVAC



STOP @ 450.0
[redacted]E LIBRARY 1 APR 7 1994 14:49
[redacted]IS # 27 MARK ESCOBAR
[redacted]NAL TEMP 15 ROSLYN ANGS
GAIN 20 02-003BH 10-11.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.4	152.5 mUS
UNKNOWN	2	21.0	2.2 US
TOLUENE	3	87.3	5.250 PPB
UNKNOWN	4	116.0	12.2 mUS
UNKNOWN	6	413.7	25.2 mUS

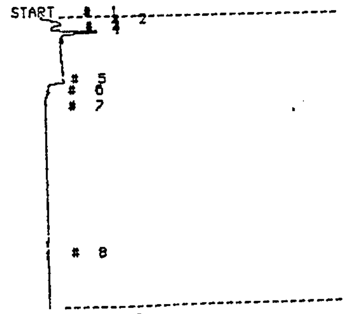
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY : APF 7 1334 15:11
ANALYSIS # 29 MARK ESCOBAF
INTERNAL TEMP .5 RCSL'YN ANGS
GAIN 20 B'.ANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.9	224.0 mUS
UNKNOWN	2	21.5	292.5 mUS
UNKNOWN	3	116.3	12.5 mUS

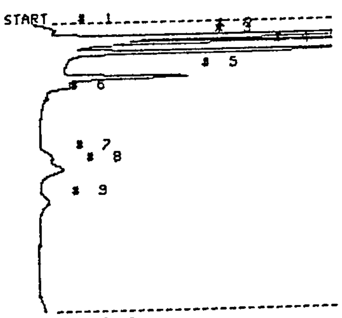
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 15:29
ANALYSIS # 31 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 03-2052P 5-6.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.2	404.4 mUS
UNKNOWN	2	24.0	505.7 mUS
UNKNOWN	4	38.0	16.3 mUS
UNKNOWN	5	116.8	11.6 mUS

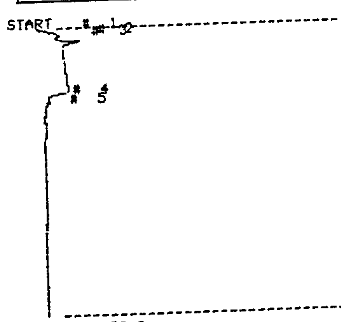
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 14:58
ANALYSIS # 28 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	303.9 mUS
UNKNOWN	2	23.0	9.9 US
UNKNOWN	3	31.6	4.2 US
UNKNOWN	4	45.8	7.6 US
UNKNOWN	5	84.8	1.9 US
UNKNOWN	7	209.7	164.5 mUS
ETHYLBENZENE	8	228.5	598.0 PPB
UNKNOWN	9	280.7	517.6 mUS

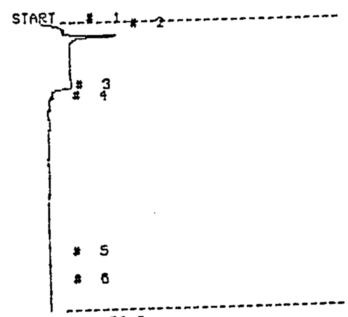
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 15:20
ANALYSIS # 32 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 03-005BH .5-2.0

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	264.6 mUS
UNKNOWN	2	21.5	216.6 mUS
UNKNOWN	3	24.2	76.0 mUS
UNKNOWN	4	115.7	13.0 mUS

PHOTOVAC



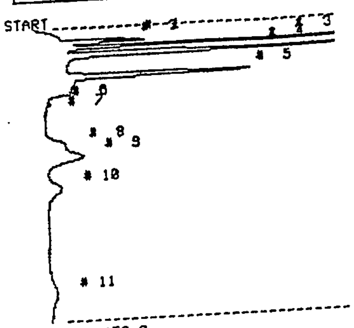
STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 15:38
ANALYSIS # 32 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 03-025BH 10-11.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.4	200.7 mUS
UNKNOWN	2	21.4	589.7 mUS
UNKNOWN	3	116.0	12.3 mUS
UNKNOWN	6	420.1	9.2 mUS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	31.6	1.000 PPM
BENZENE	2	45.8	1.000 PPM
TOLUENE	3	84.8	1.000 PPM
ETHYLBENZENE	4	209.7	1.000 PPM
MP XYLENE	5	228.5	1.000 PPM
O XYLENE	6	280.7	1.000 PPM

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 13:45
ANALYSIS # 22 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.0	1.7 VS
UNKNOWN	2	22.7	1.0 VS
UNKNOWN	3	28.3	3.6 VS
UNKNOWN	4	40.5	7.8 VS
UNKNOWN	5	74.0	2.8 VS
UNKNOWN	6	115.5	14.6 mVS
UNKNOWN	8	180.1	94.9 mVS
ETHYLBENZENE	9	196.7	4.444 PPM
UNKNOWN	10	245.9	861.1 mVS
UNKNOWN	11	407.7	625.5 mVS

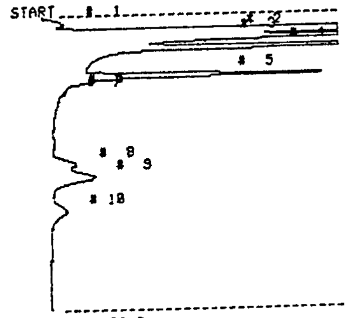
PHOTOVAC

CALIBRATED PEAK 4,BENZENE

SAMPLE LIBRARY 1 APR 7 1994 13:51
ANALYSIS # 22 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.0	1.7 VS
UNKNOWN	2	22.7	1.0 VS
MTBE	3	28.3	940.6 PPB
BENZENE	4	40.5	1.000 PPM
TOLUENE	5	74.0	719.7 PPB
UNKNOWN	6	115.5	14.6 mVS
ETHYLBENZENE	8	180.1	497.7 PPB
MP XYLENE	9	196.7	743.3 PPB
O XYLENE	10	245.9	807.3 PPB
UNKNOWN	11	407.7	625.5 mVS

PHOTOVAC



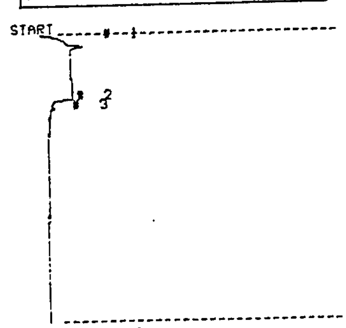
STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 14: 1
ANALYSIS # 23 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	397.3 mVS
UNKNOWN	2	24.8	17.1 VS
UNKNOWN	3	34.2	10.3 VS
UNKNOWN	4	49.2	12.4 VS
UNKNOWN	5	91.2	4.6 VS
UNKNOWN	8	225.1	1.0 VS
O XYLENE	9	246.2	2.263 PPM
UNKNOWN	10	298.7	924.7 mVS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	34.2	1.000 PPM
BENZENE	2	49.2	1.000 PPM
TOLUENE	3	91.2	1.000 PPM
ETHYLBENZENE	4	225.1	1.000 PPM
MP XYLENE	5	246.2	1.000 PPM
O XYLENE	6	298.7	1.000 PPM

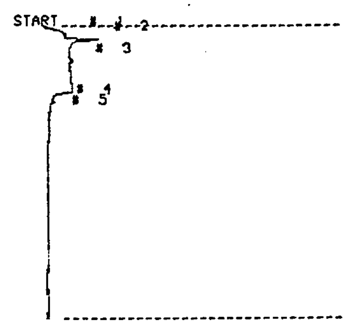
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 14:13
ANALYSIS # 24 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.0	684.1 mVS
UNKNOWN	2	115.9	14.0 mVS

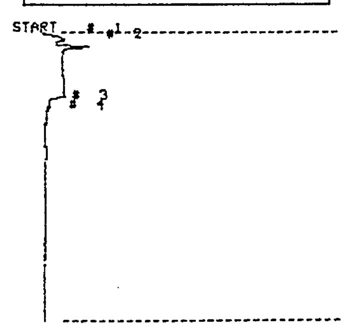
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 14:23
ANALYSIS # 25 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 02-003BH .5-2.0

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	209.0 mVS
UNKNOWN	2	20.9	311.7 mVS
UNKNOWN	3	52.9	24.2 mVS
UNKNOWN	4	116.1	12.6 mVS

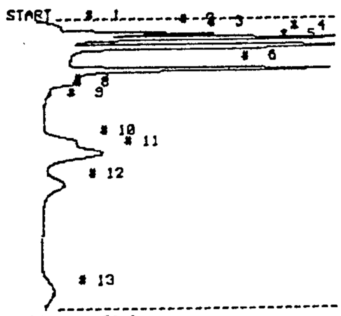
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 14:40
ANALYSIS # 26 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 02-003BH 5-6.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.4	374.9 mVS
UNKNOWN	2	23.2	345.2 mVS
UNKNOWN	3	117.2	9.2 mVS

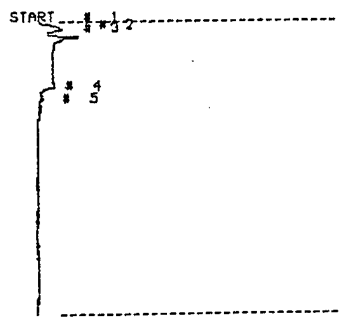
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 12:38
ANALYSIS # 15 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.6	172.6 mVS
UNKNOWN	2	20.9	959.8 mVS
UNKNOWN	3	23.7	1.5 VS
UNKNOWN	4	29.9	4.4 VS
UNKNOWN	5	42.9	9.0 VS
UNKNOWN	6	78.5	4.4 VS
UNKNOWN	8	116.1	16.8 mVS
UNKNOWN	10	192.7	219.5 mVS
UNKNOWN	11	210.1	1.5 VS
UNKNOWN	12	260.0	1.2 VS

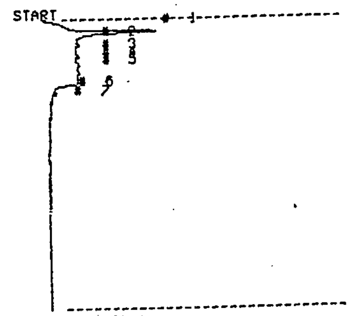
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 13: 6
ANALYSIS # 17 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 01-002BH .5-2.0

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.1	505.1 mVS
UNKNOWN	2	24.0	433.5 mVS
MTBE	3	28.6	26.36 PPB
UNKNOWN	4	119.1	12.9 mVS

PHOTOVAC



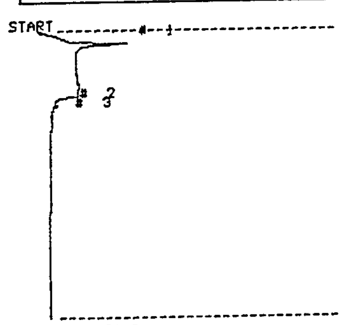
STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 13:24
ANALYSIS # 19 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 01-002BH 10-10.5

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	19.8	1.8 VS
UNKNOWN	2	39.3	7.1 mVS
UNKNOWN	3	57.4	36.4 mVS
UNKNOWN	4	71.3	7.1 mVS
UNKNOWN	6	115.3	15.1 mVS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	29.9	1.000 PPM
BENZENE	2	42.9	1.000 PPM
TOLUENE	3	78.5	1.000 PPM
ETHYLBENZENE	4	192.7	1.000 PPM
MP XYLENE	5	210.1	1.000 PPM
O XYLENE	6	260.0	1.000 PPM

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 13:15
ANALYSIS # 18 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 01-002BH 5-6.5

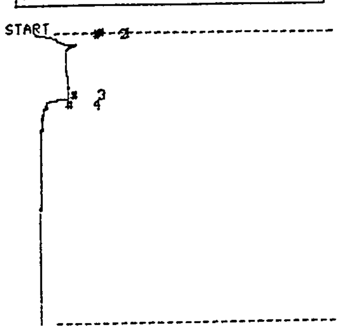
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.5	1.1 VS
UNKNOWN	2	115.3	14.8 mVS

PHOTOVAC

START
STOP @ 1.7
SAMPLE LIBRARY 1 APR 7 1994 13:26
ANALYSIS # 20 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 01-002BH 10-10.5

COMPOUND NAME PEAK R.T. AREA/PPM

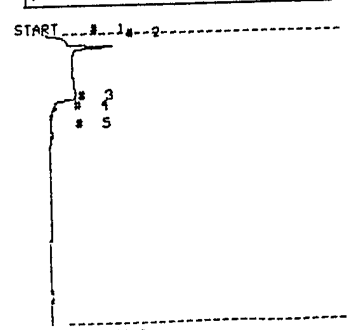
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 12:56
ANALYSIS # 16 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 20 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	19.2	1.3 VS
UNKNOWN	2	21.8	197.7 mVS
UNKNOWN	3	115.3	15.9 mVS

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 7 1994 13:34
ANALYSIS # 21 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 20 01-002BH DUPP

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.5	145.6 mVS
UNKNOWN	2	20.8	486.8 mVS
UNKNOWN	3	115.8	15.0 mVS
UNKNOWN	5	157.9	9.9 mVS

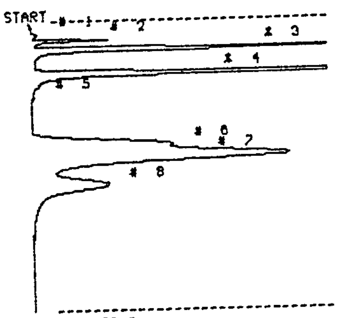
PHOTOVAC

APR 13 1994 8:28

FIELD: 30
POWER: 51

SAMPLE	0.0	12.0
CAL	0.0	0.0
EVENT 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

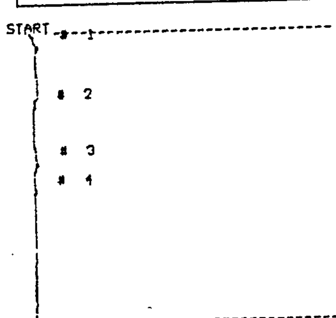
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 13 1994 8:52
ANALYSIS # 1 MARK ESCOBAR
INTERNAL TEMP 9 ROSLYN ANGS
GAIN 5 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	29.8	671.2 mVS
UNKNOWN	3	43.0	7.6 VS
UNKNOWN	4	80.1	7.2 VS
UNKNOWN	6	192.3	5.5 VS
UNKNOWN	7	208.5	17.4 VS
UNKNOWN	8	255.2	6.0 VS

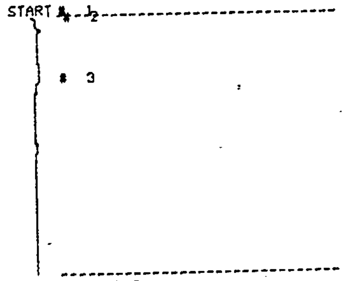
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 13 1994 9: 3
ANALYSIS # 2 MARK ESCOBAR
INTERNAL TEMP 10 ROSLYN ANGS
GAIN 5 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MP XYLENE	3	204.5	0.606 PPB

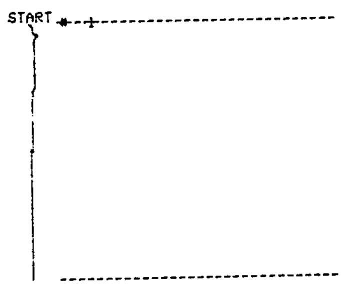
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 9:15
ANALYSIS # 3 MARK ESCOBAR
INTERNAL TEMP 11 ROSLYN ANGS
GAIN 5 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.1	23.6 mVS
UNKNOWN	2	22.0	16.8 mVS

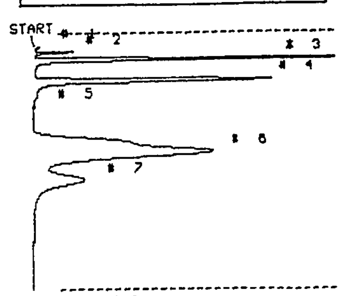
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 9:37
ANALYSIS # 4 MARK ESCOBAR
INTERNAL TEMP 12 ROSLYN ANGS
GAIN 5 P2-01-A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	19.7	19.7 mVS

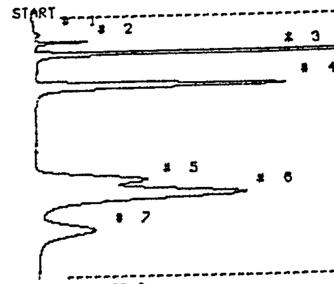
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 9:45
ANALYSIS # 5 MARK ESCOBAR
INTERNAL TEMP 12 ROSLYN ANGS
GAIN 5 RECALIBRATE

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.5	35.5 mVS
MTBE	2	28.5	454.2 PPB
BENZENE	3	40.1	629.3 PPB
TOLUENE	4	73.7	583.7 PPB
ETHYLBENZENE	6	187.3	2.710 PPM
MP XYLENE	7	230.5	212.0 PPB

PHOTOVAC



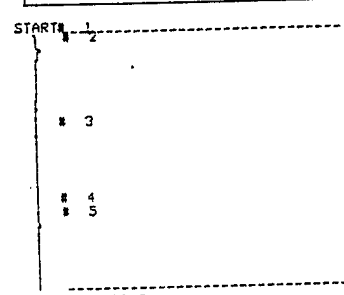
STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 9:59
ANALYSIS # 6 MARK ESCOBAR
INTERNAL TEMP 13 ROSLYN ANGS
GAIN 5 RECALIBRATE

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	25.4	44.8 mVS
UNKNOWN	2	38.1	486.3 mVS
UNKNOWN	3	55.9	6.8 VS
UNKNOWN	4	106.8	6.7 VS
UNKNOWN	5	254.0	5.3 VS
UNKNOWN	6	275.3	13.1 VS
UNKNOWN	7	329.9	3.9 VS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	38.1	1.000 PPM
BENZENE	2	55.9	1.000 PPM
TOLUENE	3	106.8	1.000 PPM
ETHYLBEZENE	4	254.0	1.000 PPM
MP XYLENE	5	275.3	1.000 PPM
O XYLENE	6	329.9	1.000 PPM

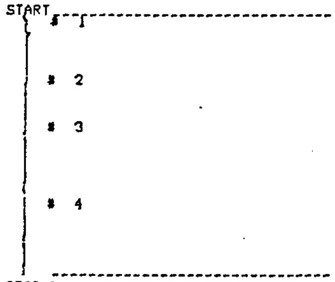
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 10: 9
ANALYSIS # 7 MARK ESCOBAR
INTERNAL TEMP 13 ROSLYN ANGS
GAIN 5 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	12.0	15.3 mVS
UNKNOWN	2	27.3	31.8 mVS
MP XYLENE	5	299.3	0.499 PPB

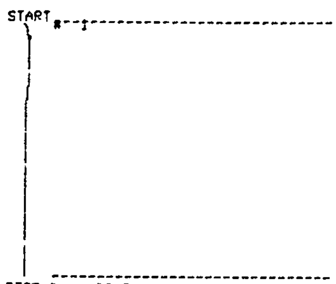
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 10:16
ANALYSIS # 8 MARK ESCOBAR
INTERNAL TEMP 13 ROSLYN ANGS
GAIN 5 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.9	17.8 mVS

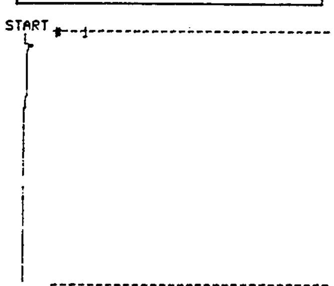
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 10:24
ANALYSIS # 9 MARK ESCOBAR
INTERNAL TEMP 14 ROSLYN ANGS
GAIN 5 P2-01-B

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	23.8	15.4 mVS

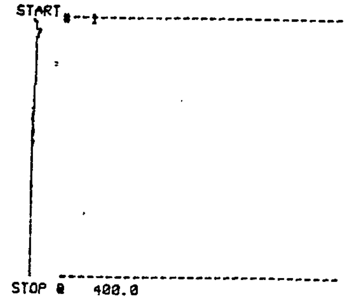
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 10:32
ANALYSIS # 10 MARK ESCOBAR
INTERNAL TEMP 14 ROSLYN ANGS
GAIN 5 P2-01-C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	23.3	55.8 mVS

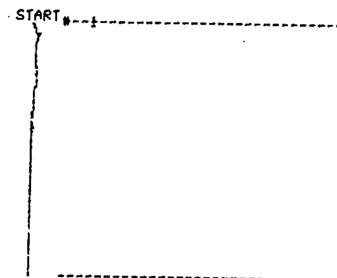
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 14:25
ANALYSIS # 11 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 5 P21-DRUM A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	22.0	22.4 mVS

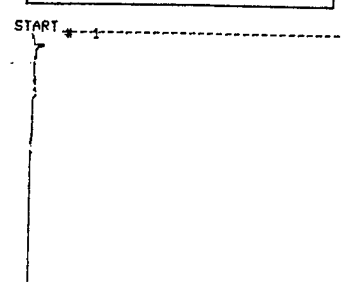
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 14:34
ANALYSIS # 12 MARK ESCOBAR
INTERNAL TEMP 16 ROSLYN ANGS
GAIN 5 P21-DRUM B

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.9	19.3 mVS

PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 13 1994 14:41
ANALYSIS # 13 MARK ESCOBAR
INTERNAL TEMP 17 ROSLYN ANGS
GAIN 5 P21-DRUM B

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	21.8	69.3 mVS

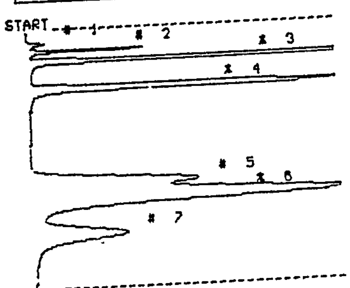
PHOTOVAC

APR 14 1994 7:56

FIELD: 30
POWER: 51

SAMPLE	0.0	10.0
CAL	0.0	0.0
EVENT 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

PHOTOVAC



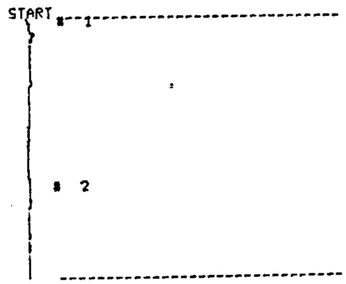
STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 8:32
ANALYSIS # 1 MARK ESCOBAR
INTERNAL TEMP 14 ROSLYN ANGS
GAIN 5 STANDARD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	22.5	182.9 mUS
UNKNOWN	2	33.3	1.0 US
UNKNOWN	3	48.4	0.8 US
UNKNOWN	4	91.1	0.6 US
UNKNOWN	5	237.5	0.6 US
UNKNOWN	6	259.4	22.1 US
UNKNOWN	7	318.2	7.1 US

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	33.3	1.000 PPM
BENZENE	2	48.4	1.000 PPM
TOLUENE	3	91.1	1.000 PPM
ETHYLBENZENE	4	237.5	1.000 PPM
MP XYLENE	5	259.4	1.000 PPM
O XYLENE	6	318.2	1.000 PPM

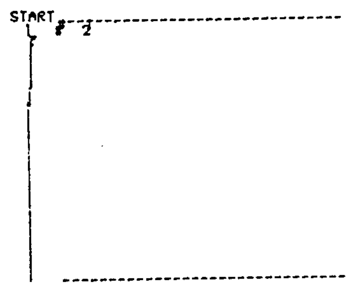
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 8:44
ANALYSIS # 2 MARK ESCOBAR
INTERNAL TEMP 15 ROSLYN ANGS
GAIN 5 BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	24.1	29.3 mUS

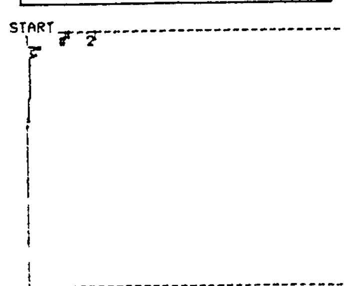
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 11:23
ANALYSIS # 3 MARK ESCOBAR
INTERNAL TEMP 18 ROSLYN ANGS
GAIN 5 P301-RETEST A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	23.9	44.4 mUS
MTBE	2	35.3	14.42 PPB

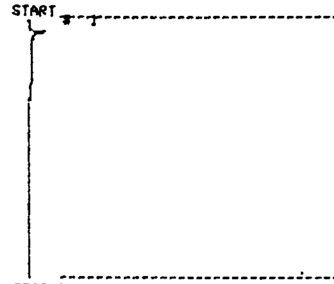
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 11:31
ANALYSIS # 4 MARK ESCOBAR
INTERNAL TEMP 19 ROSLYN ANGS
GAIN 5 P301-RETEST B

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	24.2	118.7 mUS
MTBE	2	35.1	51.87 PPB

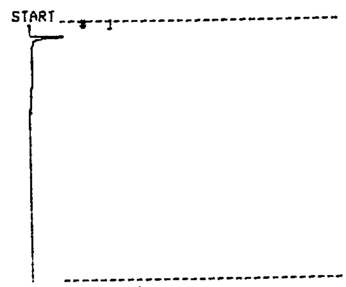
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 13:31
ANALYSIS # 5 MARK ESCOBAR
INTERNAL TEMP 18 ROSLYN ANGS
GAIN 5 P301-RETEST C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	24.0	113.8 mUS

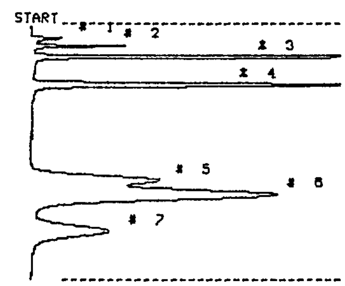
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 13:39
ANALYSIS # 6 MARK ESCOBAR
INTERNAL TEMP 19 ROSLYN ANGS ME 4/14/94
GAIN 5 P301-RETEST ~~Z~~ D

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	24.1	321.5 mUS

PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 14 1994 13:48
ANALYSIS # 7 MARK ESCOBAR
INTERNAL TEMP 19 ROSLYN ANGS
GAIN 5 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	23.7	342.1 mUS
MTBE	2	35.2	740.7 PPB
BENZENE	3	51.0	787.5 PPB
TOLUENE	4	95.3	715.9 PPB
ETHYLBENZENE	5	245.3	757.1 PPB
MP XYLENE	6	267.5	683.5 PPB
O XYLENE	7	325.1	666.3 PPB

PHOTOVAC

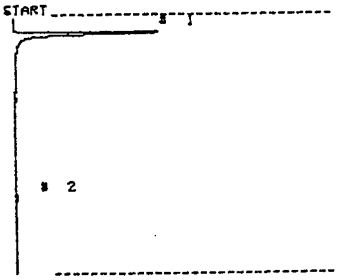
CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 14 1994 13:50
ANALYSIS # 7 MARK ESCOBAR
INTERNAL TEMP 19 ROSLYN ANGS
GAIN 5 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	23.7	342.1 mVS
MTBE	2	35.2	940.5 PPB
BENZENE	3	51.0	1000. PPB
TOLUENE	4	95.3	909.0 PPB
ETHYLBENZENE	5	245.3	961.3 PPB
MP XYLENE	6	267.5	867.8 PPB
O XYLENE	7	325.1	846.1 PPB

PHOTOVAC

START

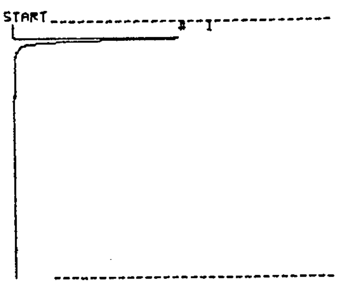


STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 12:56
ANALYSIS # 13 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PZ 01 C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	2.0 US

PHOTOVAC

START

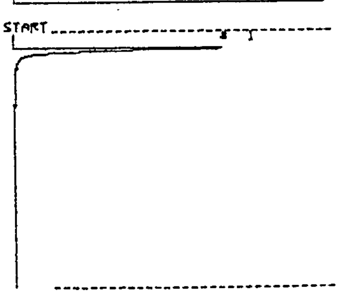


STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 13: 5
ANALYSIS # 14 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 PZ 01 D

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	2.3 US

PHOTOVAC

START

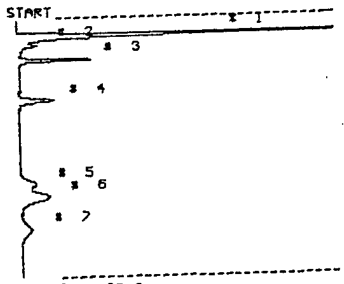


STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 13:13
ANALYSIS # 15 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	3.3 US

PHOTOVAC

START

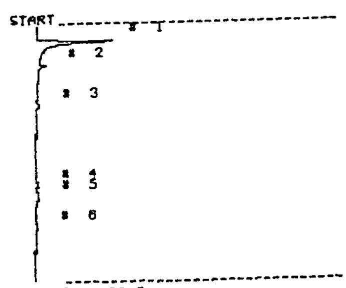


STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 13:34
ANALYSIS # 16 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.7	4.8 US
MTBE	2	44.6	554.3 PPB
BENZENE	3	67.8	361.7 PPB
TOLUENE	4	132.1	401.6 PPB
MP XYLENE	5	261.8	235.4 PPB
MP XYLENE	6	281.0	523.8 PPB
O XYLENE	7	330.5	526.8 PPB

PHOTOVAC

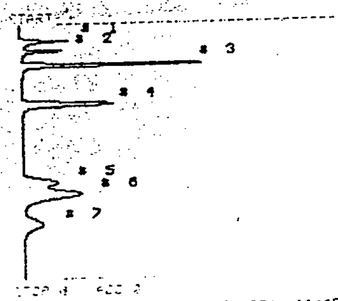
START



STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 14:19
ANALYSIS # 17 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PILE DIRT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.1	1.0 US
BENZENE	2	65.3	26.22 PPB
TOLUENE	3	127.1	27.16 PPB
ETHYLBENZENE	4	251.6	18.42 PPB
MP XYLENE	5	265.3	28.43 PPB
O XYLENE	6	317.0	5.685 PPB

PHOTOVAC



SAMPLE LIBRARY 1 APR 22 1994 11:45
ANALYSIS # 9 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1.108 PPM
[illegible]	[illegible]	[illegible]	1.098 PPM
[illegible]	[illegible]	[illegible]	2.297 PPM
[illegible]	[illegible]	[illegible]	1.042 PPM

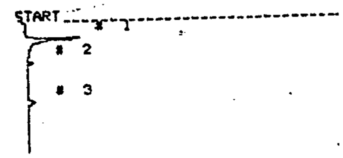
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 22 1994 11:49
ANALYSIS # 9 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1.000 PPM
[illegible]	[illegible]	[illegible]	1.120 PPM
[illegible]	[illegible]	[illegible]	1.103 PPM
[illegible]	[illegible]	[illegible]	1.039 PPM
[illegible]	[illegible]	[illegible]	1.053 PPM

PHOTOVAC



APR 22 1994 11:56

FIELD: 30
POWER: 25

SAMPLE	0.0	10.0
CAL	0.0	0.0
EVENT 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 11:59
ANALYSIS # 10 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.2	687.6 mUS
BENZENE	2	65.4	17.18 PPB
TOLUENE	3	127.3	66.51 PPB
ETHYLBENZENE	4	250.7	103.3 PPB
MP XYLENE	5	269.3	116.1 PPB
O XYLENE	6	315.6	67.19 PPB

PHOTOVAC

I	COMPOUND	ID #	R.T.	LIMIT
	MTBE	1	42.8	1.000 PPM
	BENZENE	2	65.2	1.000 PPM
	TOLUENE	3	126.1	1.000 PPM
	ETHYLBENZENE	4	247.6	1.000 PPM
	MP XYLENE	5	265.5	1.000 PPM
	O XYLENE	6	312.0	1.000 PPM

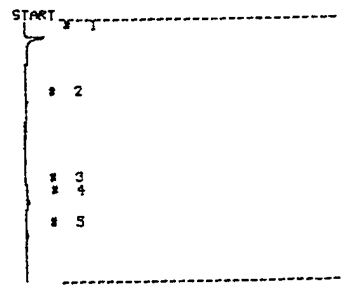
PHOTOVAC

I	COMPOUND	ID #	R.T.	LIMIT
	MTBE	1	42.8	1.000 PPM
	BENZENE	2	65.2	1.000 PPM
	TOLUENE	3	126.1	1.000 PPM
	ETHYLBENZENE	4	247.6	1.000 PPM
	MP XYLENE	5	265.5	1.000 PPM
	O XYLENE	6	312.0	1.000 PPM

PHOTOVAC

I	COMPOUND	ID #	R.T.	LIMIT
	MTBE	1	42.8	1.000 PPM
	BENZENE	2	65.2	1.000 PPM
	TOLUENE	3	126.1	1.000 PPM
	ETHYLBENZENE	4	247.6	1.000 PPM
	MP XYLENE	5	265.5	1.000 PPM
	O XYLENE	6	312.0	1.000 PPM

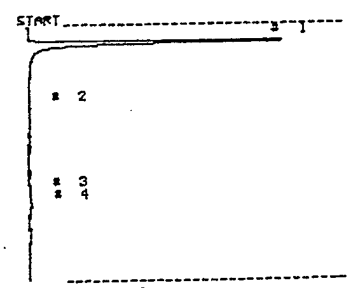
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 12:36
ANALYSIS # 11 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PZ 01 A

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.6	225.1 mUS
TOLUENE	2	131.5	10.43 PPB
MP XYLENE	3	262.4	2.737 PPB
MP XYLENE	4	281.3	21.82 PPB

PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 22 1994 12:46
ANALYSIS # 12 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PZ 01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.9	3.8 US
TOLUENE	2	132.3	8.245 PPB
MP XYLENE	3	264.5	4.837 PPB
MP XYLENE	4	289.0	13.60 PPB

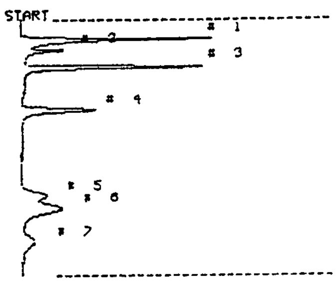
PHOTOVAC

APR 23 1994 9:24

FIELD: 30
POWER: 25

SAMPLE	8.0	10.0
CAL	0.0	0.0
EVENT 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

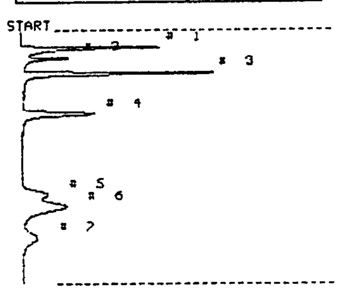
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 9:36
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 20 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.6	2.8 VS
UNKNOWN	2	48.1	372.1 mVS
UNKNOWN	3	73.7	2.5 VS
UNKNOWN	4	141.9	1.7 VS
UNKNOWN	5	278.3	1.0 VS
UNKNOWN	6	298.4	2.2 VS
UNKNOWN	7	350.6	661.8 mVS

PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 9:49
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.2	1.9 VS
UNKNOWN	2	45.7	452.6 mVS
UNKNOWN	3	69.7	2.7 VS
UNKNOWN	4	134.5	1.7 VS
UNKNOWN	5	262.7	1.1 VS
UNKNOWN	6	281.6	2.4 VS
UNKNOWN	7	330.5	714.9 mVS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	45.7	1.000 PPM
BENZENE	2	69.7	1.000 PPM
TOLUENE	3	134.5	1.000 PPM
ETHYLBENZENE	4	262.7	1.000 PPM
MP XYLENE	5	281.6	1.000 PPM
O XYLENE	6	330.5	1.000 PPM

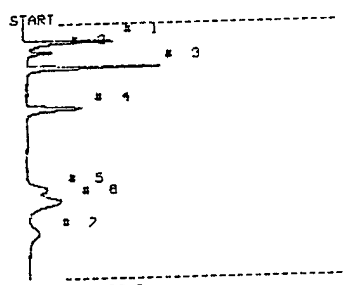
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 23 1994 9:53
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.2	1.9 VS
MTBE	2	45.7	1000. PPB
BENZENE	3	69.7	1000. PPB
TOLUENE	4	134.5	1000. PPB
ETHYLBENZENE	5	262.7	1.000 PPM
MP XYLENE	6	281.6	1.000 PPM
O XYLENE	7	330.5	1000. PPB

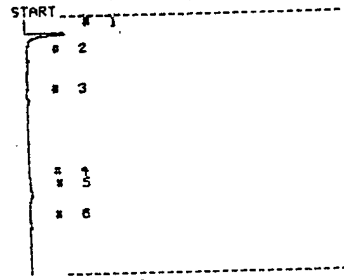
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 10: 1
ANALYSIS # 3 J BYRD JR
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.4	1.2 VS
MTBE	2	45.9	521.1 PPB
BENZENE	3	69.8	638.5 PPB
TOLUENE	4	134.5	732.5 PPB
ETHYLBENZENE	5	263.0	753.3 PPB
MP XYLENE	6	281.9	726.4 PPB
O XYLENE	7	330.8	739.9 PPB

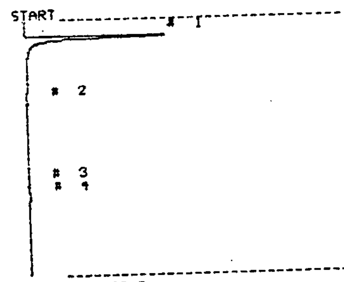
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 10:27
ANALYSIS # 4 J BYRD JR
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 PILE DIRT C

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.2	501.1 mVS
TOLUENE	3	133.3	18.58 PPB
ETHYLBENZENE	4	260.3	23.27 PPB
MP XYLENE	5	279.8	37.36 PPB

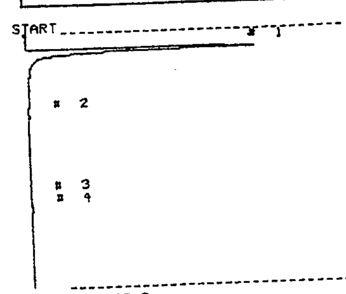
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 10:38
ANALYSIS # 5 J BYRD JR
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 PILE DIRT D

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.1	2.0 VS
TOLUENE	2	132.3	4.313 PPB
MP XYLENE	4	278.3	15.57 PPB

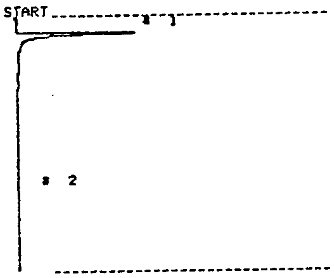
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 10:48
ANALYSIS # 6 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 PILE DIRT # B

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.6	3.5 VS
MP XYLENE	4	280.1	9.391 PPB

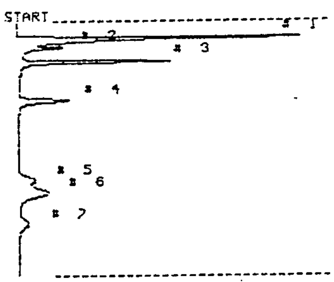
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 10:57
ANALYSIS # 7 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 PILE DIRT B RESH

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.1	1.6 US

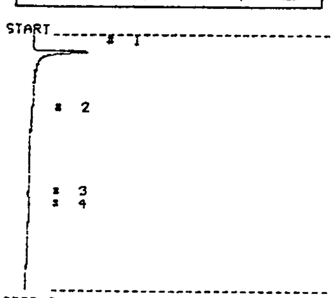
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 11: 6
ANALYSIS # 8 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 ~~PILE DIRT B RESH~~ Calibration Ck.

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.3	4.7 US
MTBE	2	43.4	1.483 PPM
BENZENE	3	65.8	715.3 PPB
TOLUENE	4	128.3	671.8 PPB
ETHYLBENZENE	5	254.6	623.6 PPB
MP XYLENE	6	273.5	644.2 PPB
O XYLENE	7	321.5	648.3 PPB

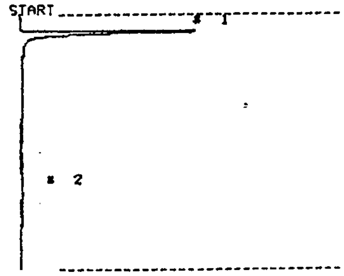
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 12: 2
ANALYSIS # 9 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 PZ-02 15

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.4	962.0 mUS
TOLUENE	2	134.1	6.636 PPB
ETHYLBENZENE	3	265.1	8.331 PPB
MP XYLENE	4	284.6	20.79 PPB

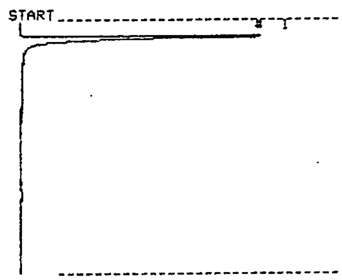
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 13: 6
ANALYSIS # 10 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 PZ-02 30

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	2.5 US

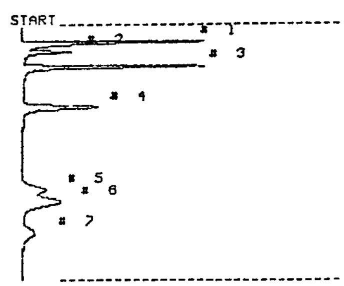
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 13:14
ANALYSIS # 11 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 AIR

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.7	4.0 US

PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 13:22
ANALYSIS # 12 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	2.7 US
MTBE	2	44.7	1.293 PPM
BENZENE	3	67.8	882.2 PPB
TOLUENE	4	131.7	975.6 PPB
ETHYLBENZENE	5	260.3	874.0 PPB
MP XYLENE	6	279.2	784.3 PPB
O XYLENE	7	328.1	849.9 PPB

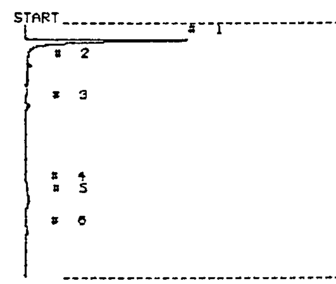
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 23 1994 13:25
ANALYSIS # 12 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	2.7 US
MTBE	2	44.7	1.466 PPM
BENZENE	3	67.8	1000. PPB
TOLUENE	4	131.7	1.105 PPM
ETHYLBENZENE	5	260.3	990.7 PPB
MP XYLENE	6	279.2	889.0 PPB
O XYLENE	7	328.1	963.3 PPB

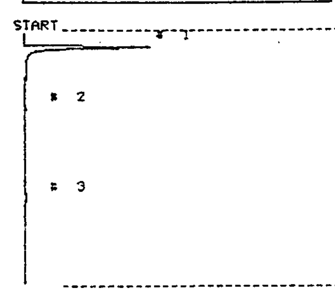
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 13:33
ANALYSIS # 13 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PZ-02 30 RESHOOT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.8	2.2 US
BENZENE	2	68.0	14.00 PPB
TOLUENE	3	132.1	40.72 PPB
ETHYLBENZENE	4	260.3	30.15 PPB
MP XYLENE	5	279.8	45.18 PPB
O XYLENE	6	328.4	12.06 PPB

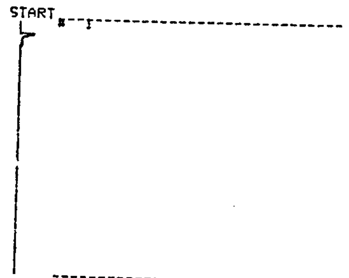
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 23 1994 14: 7
ANALYSIS # 14 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PZ-02 45

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	27.7	1.6 US
ETHYLBENZENE	3	263.9	22.62 PPB

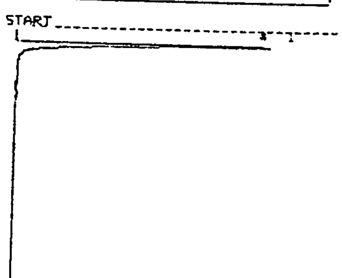
PHOTOVAC



SAMPLE LIBRARY 1 APR 23 1994 14:51
ANALYSIS # 15 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 P2-02 60

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	26.7	135.4 mVS

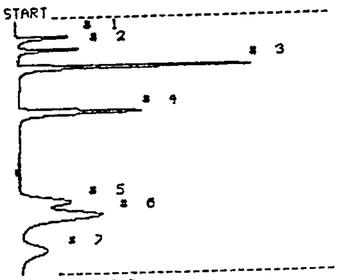
PHOTOVAC



SAMPLE LIBRARY 1 APR 23 1994 15:34
ANALYSIS # 16 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 P2-02 75

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	26.9	3.6 VS

PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 25 1994 9:45
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.5	641.1 mVS
UNKNOWN	2	50.3	675.1 mVS
UNKNOWN	3	77.5	3.4 VS
UNKNOWN	4	148.5	2.9 VS
UNKNOWN	5	290.9	2.3 VS
UNKNOWN	6	312.2	4.6 VS

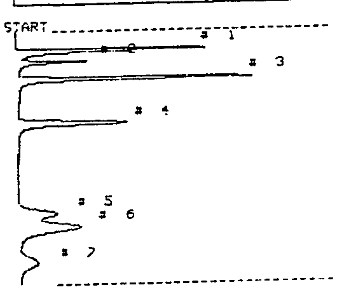
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 25 1994 9:49
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.5	641.1 mVS
MTBE	2	50.3	1.000 PPM
BENZENE	3	77.5	1.000 PPM
TOLUENE	4	148.5	1.000 PPM
ETHXLBENZENE	5	290.9	1.000 PPM
MP XYLENE	6	312.2	1.000 PPM

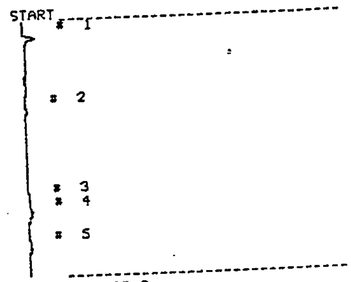
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 25 1994 9:58
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 BTEX

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.7	2.7 VS
MTBE	2	50.3	1.185 PPM
BENZENE	3	77.5	1.022 PPM
TOLUENE	4	148.7	891.2 PPB
ETHXLBENZENE	5	292.1	752.5 PPB
MP XYLENE	6	313.7	747.4 PPB

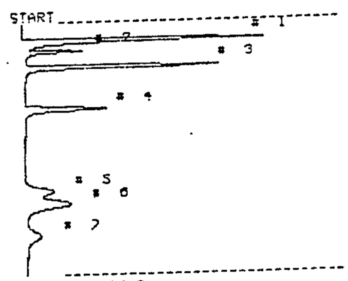
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 25 1994 11:16
ANALYSIS # 3 J BYRD JR
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 VEG OIL

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.0	144.3 mVS
TOLUENE	2	142.9	6.164 PPB
ETHXLBENZENE	3	281.9	14.56 PPB
MP XYLENE	4	302.6	24.45 PPB
UNKNOWN	5	355.4	7.3 mVS

PHOTOVAC



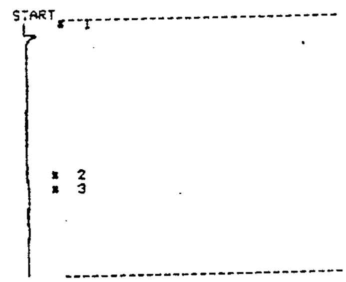
STOP @ 400.0
SAMPLE LIBRARY 1 APR 25 1994 11:39
ANALYSIS # 5 J BYRD JR
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.7	3.5 VS
MTBE	2	46.6	1.327 PPM
BENZENE	3	71.1	924.6 PPB
TOLUENE	4	137.5	752.1 PPB
ETHXLBENZENE	5	270.5	645.8 PPB
MP XYLENE	6	290.3	638.0 PPB
O XYLENE	7	341.0	777.6 PPB

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	46.0	1.000 PPM
BENZENE	2	70.8	1.000 PPM
TOLUENE	3	135.7	1.000 PPM
ETHXLBENZENE	4	265.8	1.000 PPM
MP XYLENE	5	285.2	1.000 PPM
O XYLENE	6	339.8	1.000 PPM

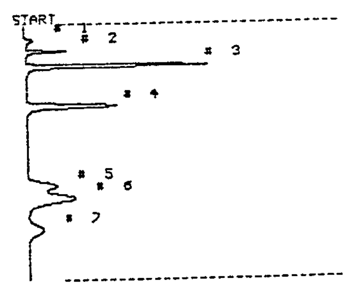
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 25 1994 14:23
ANALYSIS # 6 J BYRD JR
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 PZ-02 160#

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	27.3	127.8 mVS
MP XYLENE	3	285.2	5.238 PPB

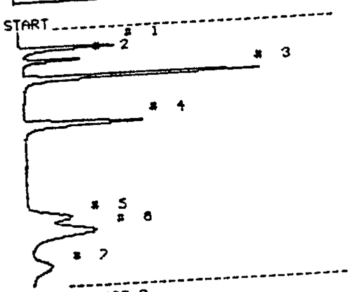
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 25 1994 16: 8
ANALYSIS # 7 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.0	90.2 mVS
MTBE	2	44.7	791.0 PPB
BENZENE	3	68.2	919.5 PPB
TOLUENE	4	131.9	898.5 PPB
ETHXLBENZENE	5	258.5	758.0 PPB
MP XYLENE	6	277.1	725.4 PPB
O XYLENE	7	325.7	927.9 PPB

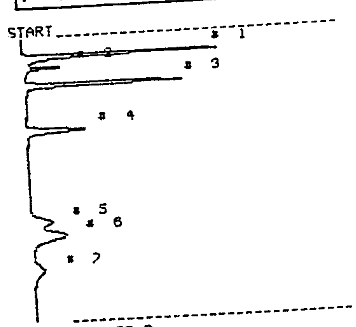
PHOTOVAC



STOP @ 400.0
SAMPLE LIBRARY 1 APR 26 1994 8:28
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.8	1.2 VS
UNKNOWN	2	50.6	652.1 mVS
UNKNOWN	3	78.0	3.5 VS
UNKNOWN	4	149.7	2.9 VS
UNKNOWN	5	294.8	1.9 VS
UNKNOWN	6	316.4	3.8 VS

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 26 1994 8:45
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.7	2.6 VS
UNKNOWN	2	50.5	351.1 mVS
UNKNOWN	3	77.8	2.1 VS
UNKNOWN	4	149.7	1.3 VS
UNKNOWN	5	295.1	919.9 mVS
UNKNOWN	6	317.0	1.9 VS
UNKNOWN	7	373.7	594.8 mVS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	50.5	1.000 PPM
BENZENE	2	77.8	1.000 PPM
TOLUENE	3	149.7	1.000 PPM
ETHYLBENZENE	4	295.1	1.000 PPM
MP XYLENE	5	317.0	1.000 PPM
O XLENE	6	373.7	1.000 PPM

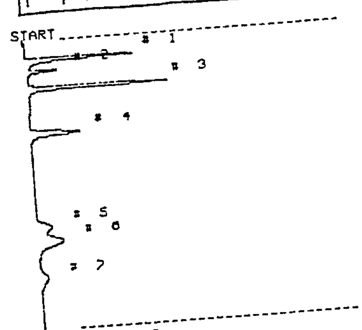
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 26 1994 8:50
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.7	2.6 VS
MTBE	2	50.5	1000. PPB
BENZENE	3	77.8	1000. PPB
TOLUENE	4	149.7	1000. PPB
ETHYLBENZENE	5	295.1	1000. PPB
MP XYLENE	6	317.0	1.000 PPM
O XLENE	7	373.7	1.000 PPM

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 26 1994 9: 0
ANALYSIS # 3 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.8	1.4 VS
MTBE	2	50.6	831.2 PPB
BENZENE	3	78.1	856.4 PPB
TOLUENE	4	150.1	840.1 PPB
ETHYLBENZENE	5	296.0	746.1 PPB
MP XYLENE	6	317.6	741.8 PPB
O XLENE	7	374.5	719.8 PPB

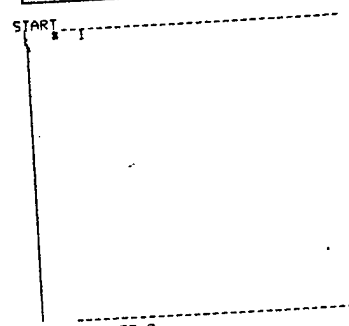
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 26 1994 12: 8
ANALYSIS # 3 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.8	1.4 VS
MTBE	2	50.6	970.5 PPB
BENZENE	3	78.1	1.000 PPM
TOLUENE	4	150.1	980.9 PPB
ETHYLBENZENE	5	296.0	871.2 PPB
MP XYLENE	6	317.6	866.1 PPB
O XLENE	7	374.5	840.4 PPB

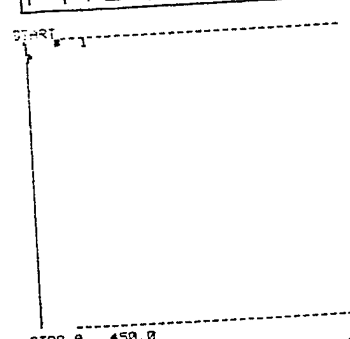
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 26 1994 12:42
ANALYSIS # 4 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 PZ-03 15

COMPOUND NAME PEAK R.T. AREA/PPM

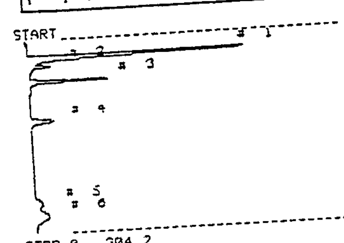
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 26 1994 14: 8
ANALYSIS # 5 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 PZ-03 30

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.1	48.1 mVS

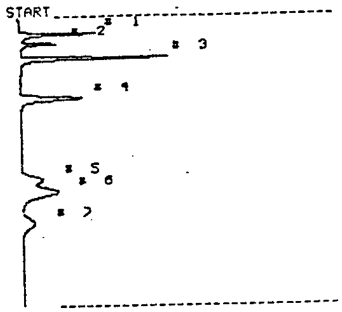
PHOTOVAC



STOP @ 304.2
SAMPLE LIBRARY 1 APR 26 1994 14:46
ANALYSIS # 6 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.7	3.2 VS
UNKNOWN	2	44.5	268.2 mVS
UNKNOWN	3	67.7	314.3 mVS
UNKNOWN	4	132.1	472.6 mVS
UNKNOWN	5	262.4	319.2 mVS

PHOTOVAC



SAMPLE LIBRARY 1 APR 26 1994 15:21
ANALYSIS # 9 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.2	890.6 mVS
UNKNOWN	2	43.9	331.4 mVS
UNKNOWN	3	66.6	1.8 VS
UNKNOWN	4	129.9	1.3 VS
UNKNOWN	5	257.3	874.0 mVS
ETHYLBENZENE	6	276.2	2.321 PPM
MP XYLENE	7	324.8	373.9 PPB

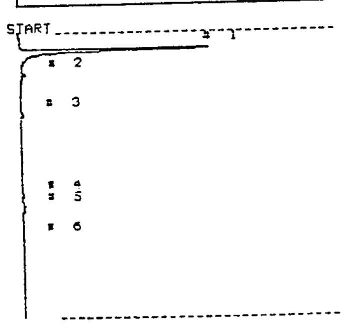
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 APR 26 1994 15:23
ANALYSIS # 9 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.2	890.6 mVS
MTBE	2	43.9	1.072 PPM
BENZENE	3	66.6	1000. PPB
TOLUENE	4	129.9	1.166 PPM
ETHYLBENZENE	5	257.3	1.079 PPM
MP XYLENE	6	276.2	1.086 PPM
O XLENE	7	324.8	1.169 PPM

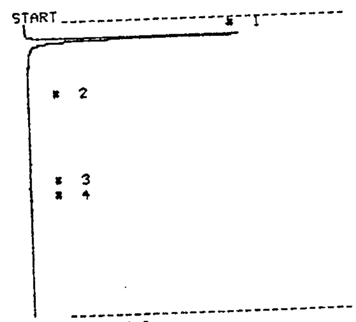
PHOTOVAC



SAMPLE LIBRARY 1 APR 26 1994 15:32
ANALYSIS # 10 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS PZ-03 45
GAIN 2 ~~BTEX STD~~

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.5	2.4 VS
BENZENE	2	66.9	16.12 PPB
TOLUENE	3	130.3	37.17 PPB
ETHYLBENZENE	4	259.1	27.39 PPB
MP XYLENE	5	278.0	44.66 PPB
O XLENE	6	326.9	9.717 PPB

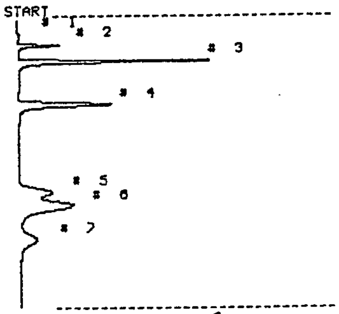
PHOTOVAC



SAMPLE LIBRARY 1 APR 26 1994 15:49
ANALYSIS # 11 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 PZ-03 60

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.7	2.6 VS
TOLUENE	2	131.9	6.581 PPB
MP XYLENE	4	282.8	4.127 PPB

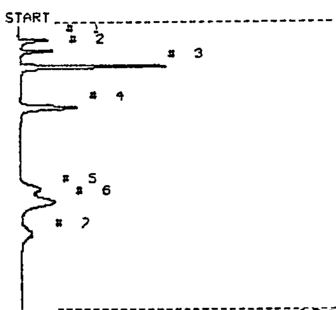
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR ~~26~~ 27 1994 17:33
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.7	5.7 mUS
UNKNOWN	2	47.1	435.7 mUS
UNKNOWN	3	72.3	2.5 US
UNKNOWN	4	139.7	2.1 US
UNKNOWN	5	275.3	1.4 US
UNKNOWN	6	295.4	2.9 US
UNKNOWN	7	347.0	874.5 mUS

PHOTOVAC



STOP @ 450.0 27 0928
SAMPLE LIBRARY 1 APR ~~26~~ 1994 ~~17:45~~
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 CALIBRATION

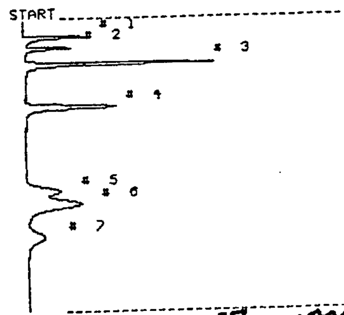
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.4	301.5 mUS
UNKNOWN	2	46.0	318.4 mUS
UNKNOWN	3	70.2	1.8 US
UNKNOWN	4	135.9	1.2 US
UNKNOWN	5	267.2	840.9 mUS
UNKNOWN	6	286.7	1.7 US
UNKNOWN	7	336.8	548.0 mUS

PHOTOVAC

CALIBRATED PEAK 3,BENZENE
27 0944
SAMPLE LIBRARY 1 APR ~~26~~ 1994 ~~17:53~~
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 CALIBRATION

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.4	301.5 mUS
MTBE	2	46.0	1.000 PPM
BENZENE	3	70.2	1.000 PPM
TOLUENE	4	135.9	1000. PPB
ETHYLBENZENE	5	267.2	1.000 PPM
MP XYLENE	6	286.7	1.000 PPM
O XYLENE	7	336.8	1.000 PPM

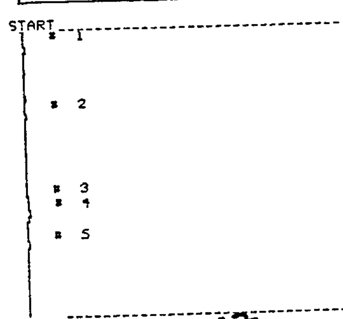
PHOTOVAC



STOP @ 450.0 27 1000
SAMPLE LIBRARY 1 APR ~~26~~ 1994 ~~[illegible]~~
ANALYSIS # 3 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS BTEX STD
GAIN 2 ~~CALIBRATION~~

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	29.5	702.0 mUS
MTBE	2	46.2	1.349 PPM
BENZENE	3	70.6	1.328 PPM
TOLUENE	4	136.5	1.584 PPM
ETHYLBENZENE	5	268.7	1.670 PPM
MP XYLENE	6	288.2	1.622 PPM
O XYLENE	7	338.6	1.561 PPM

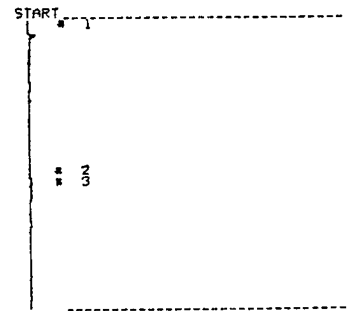
PHOTOVAC



STOP @ 450.0 27 1118
SAMPLE LIBRARY 1 APR ~~26~~ 1994 ~~19:22~~
ANALYSIS # 4 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS PZ-03
GAIN 2 ~~CALIBRATION~~ 90

COMPOUND NAME	PEAK	R.T.	AREA/PPM
TOLUENE	2	137.1	13.23 PPB
ETHYLBENZENE	3	270.2	30.02 PPB
MP XYLENE	4	290.3	50.14 PPB
O XYLENE	5	341.0	10.81 PPB

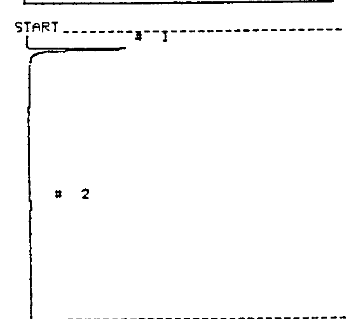
PHOTOVAC



STOP @ 450.0 27
SAMPLE LIBRARY 1 APR ~~26~~ 1994 ~~20:13~~ 1208
ANALYSIS # 5 J BYRD JR
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 PZ-03 105

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.3	49.3 mUS
ETHYLBENZENE	2	255.5	7.667 PPB
ETHYLBENZENE	3	272.6	9.005 PPB

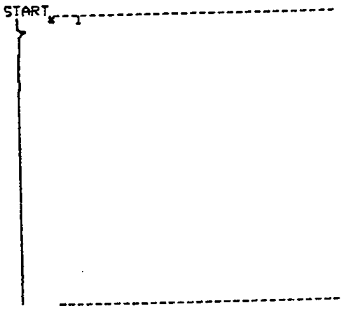
PHOTOVAC



STOP @ 450.0 27
SAMPLE LIBRARY 1 APR ~~26~~ 1994 ~~20:24~~ 1220
ANALYSIS # 6 J BYRD JR
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	28.5	1.1 US

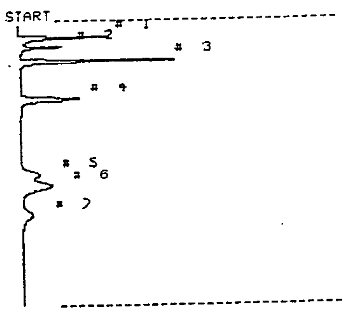
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 27 1994 15:41
ANALYSIS # 7 J BYRD JR
INTERNAL TEMP 27 ROSLYN ANGS
GAIN 2 PZ-03 155

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	26.7	66.6 mUS

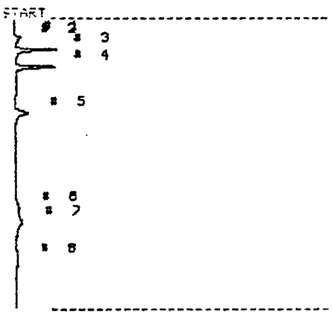
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 APR 27 1994 15:50
ANALYSIS # 8 J BYRD JR
INTERNAL TEMP 27 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	27.8	396.6 mUS
MTBE	2	42.9	1.170 PPM
BENZENE	3	65.0	982.0 PPB
TOLUENE	4	126.1	939.8 PPB
ETHYLBENZENE	5	246.5	846.6 PPB
ETHYLBENZENE	6	264.5	1.662 PPM
MP XYLENE	7	310.4	261.6 PPB

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 2 1994 13:26
ANALYSIS # 4 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.3	50.8 mVS
UNKNOWN	3	50.5	489.3 mVS
UNKNOWN	4	77.6	514.9 mVS
UNKNOWN	5	149.7	291.1 mVS
UNKNOWN	6	295.3	74.6 mVS
ETHYLBENZENE	7	318.2	695.6 PPB
MP XYLENE	8	374.9	104.0 PPB

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	59.7	1.000 PPM
BENZENE	2	91.1	1.000 PPM
TOLUENE	3	176.2	1.000 PPM
ETHYLBENZENE	4	346.5	1.000 PPM
MP XYLENE	5	371.3	2.000 PPM
O XYLENE	6	436.8	1.000 PPM

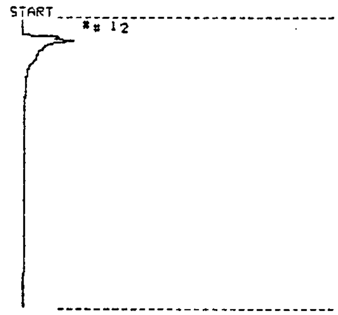
PHOTOVAC

CALIBRATED PEAK 4,BENZENE

SAMPLE LIBRARY 1 MAY 2 1994 13:28
ANALYSIS # 4 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.3	50.8 mVS
MTBE	3	50.5	5.489 PPM
BENZENE	4	77.5	1.000 PPM
TOLUENE	5	149.7	830.9 PPB
ETHYLBENZENE	6	296.3	316.9 PPB
MP XYLENE	7	318.2	400.3 PPB
O XYLENE	8	374.9	396.1 PPB

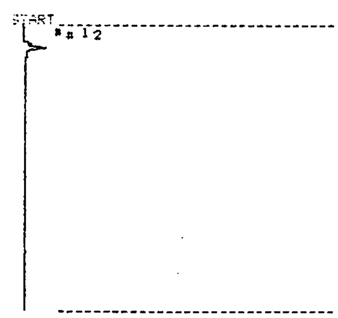
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 2 1994 13:43
ANALYSIS # 5 M HENSON
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 MW-01.8FT BLS

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.2	629.4 mVS
UNKNOWN	2	37.2	1.0 VS

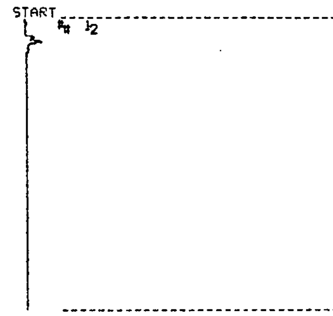
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 2 1994 14:50
ANALYSIS # 6 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 MW-0[illegible] 45FT BLS

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.9	56.5 mVS
UNKNOWN	2	37.0	177.0 mVS

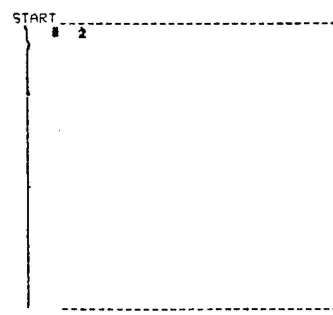
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 2 1994 16:17
ANALYSIS # 7 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 MW-0[illegible] 75FT BLS

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.3	81.5 mVS
UNKNOWN	2	39.2	113.7 mVS

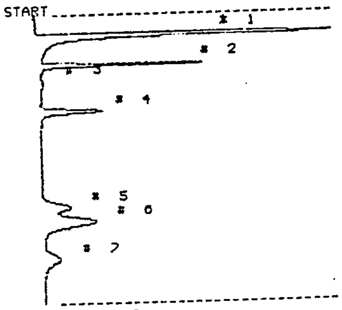
PHOTOVAC



STOP @ 450.2
SAMPLE LIBRARY 1 MAY 2 1994 16:27
ANALYSIS # 8 M HENSON
INTERNAL TEMP 24 ROSLYN ANGS
GAIN 2 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.5	7.5 mVS

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 3 1994 10:21
ANALYSIS # 2 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 5 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.2	6.2 VS
UNKNOWN	2	79.4	1.9 VS
UNKNOWN	3	105.9	9.4 mVS
UNKNOWN	4	153.3	1.3 VS
UNKNOWN	5	304.7	1.2 VS
UNKNOWN	6	327.2	2.9 VS
UNKNOWN	7	385.7	325.3 mVS

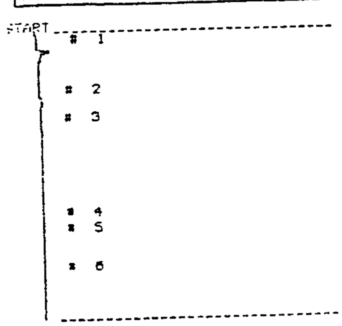
PHOTOVAC

CALIBRATED PEAK 2,BENZENE

SAMPLE LIBRARY 1 MAY 3 1994 10:25
ANALYSIS # 2 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 5 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.2	1.000 PPM
BENZENE	2	79.4	1.000 PPM
UNKNOWN	3	105.9	9.4 mVS
TOLUENE	4	153.3	1000. PPB
ETHYLBENZENE	5	304.7	1200. PPB
MP XYLENE	6	327.2	2.000 PPM
O XYLENE	7	385.7	1000. PPB

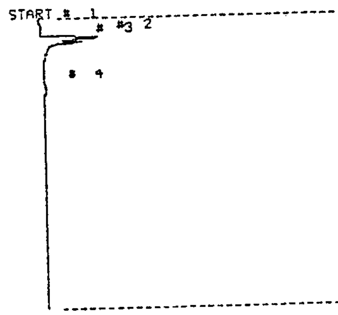
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 3 1994 13: 8
ANALYSIS # 3 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 5 MW-01 100FT BLS

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	31.7	12.25 PPB
UNKNOWN	2	112.5	23.7 mVS
MP XYLENE	5	326.3	15.99 PPB

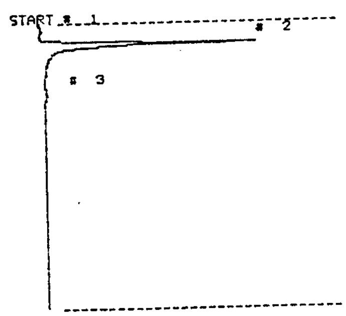
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 3 1994 13:23
ANALYSIS # 4 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 5 MW-01 120FT BLS

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	2	30.9	161.0 PPB
UNKNOWN	3	37.7	490.3 mVS
UNKNOWN	4	106.3	11.2 mVS

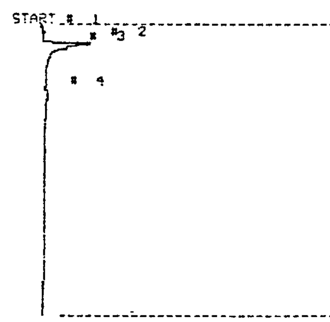
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 3 1994 16:10
ANALYSIS # 5 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 5 MW-01 100FT BLS
140

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	13.6	13.5 mVS
MTBE	2	32.9	616.7 PPB
UNKNOWN	3	108.1	16.9 mVS

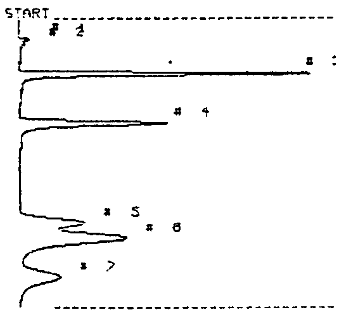
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 3 1994 16:39
ANALYSIS # 6 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 5 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	2	31.3	141.1 PPB
UNKNOWN	3	37.9	335.0 mVS
UNKNOWN	4	105.6	7.3 mVS

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1   MAY 4 1994   9:13
ANALYSIS # 3   M HENSON
INTERNAL TEMP 24   ROSLYN ANGS
GAIN 2   1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	34.5	97.9 mUS
UNKNOWN	2	40.8	12.4 mUS
UNKNOWN	3	86.8	4.8 US
UNKNOWN	4	163.3	4.0 US
UNKNOWN	5	322.4	3.1 US
UNKNOWN	6	345.8	7.0 US
UNKNOWN	7	407.3	2.7 US

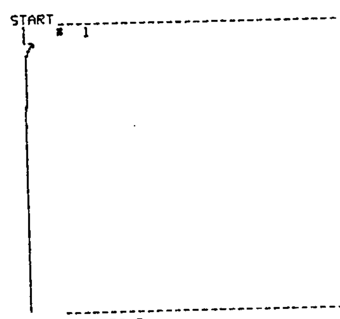
PHOTOVAC

CALIBRATED PEAK 3, BENZENE

SAMPLE LIBRARY 1   MAY 4 1994   9:17
ANALYSIS # 3   M HENSON
INTERNAL TEMP 24   ROSLYN ANGS
GAIN 2   1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	34.5	97.9 mUS
MTBE	2	40.8	1000. PPB
BENZENE	3	86.8	1.000 PPM
TOLUENE	4	163.3	1000. PPB
ETHYLBENZENE	5	322.4	1000. PPB
MP XYLENE	6	345.8	2.000 PPM
O XYLENE	7	407.3	1.000 PPM

PHOTOVAC



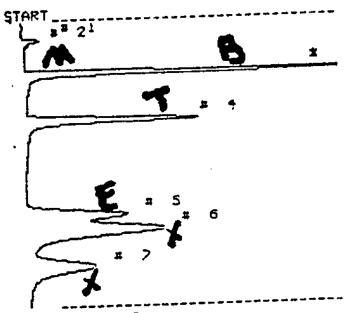
STOP @ 450.0
SAMPLE LIBRARY 1   MAY 4 1994   11:14
ANALYSIS # 4   M HENSON
INTERNAL TEMP 25   ROSLYN ANGS
GAIN 2   01-001MW 155FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.4	100.5 mUS

PHOTOVAC

•1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	49.8	1.000 PPM
BENZENE	2	86.8	1.000 PPM
TOLUENE	3	163.9	1.000 PPM
ETHYLBENZENE	4	322.4	1.000 PPM
MP XYLENE	5	345.8	2.000 PPM
O XYLENE	6	407.3	1.000 PPM

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 8:58
ANALYSIS # 1 M HENSON
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 [redacted]

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.4	182.4 mUS
UNKNOWN	3	81.9	6.4 US
UNKNOWN	4	156.7	4.8 US
UNKNOWN	5	308.9	5.0 US
UNKNOWN	6	332.0	9.8 US

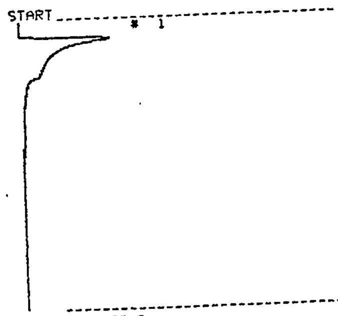
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 MAY 9 1994 9: 8
ANALYSIS # 1 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.4	182.4 mUS
BENZENE	3	81.9	1.000 PPM
TOLUENE	4	156.7	1.000 PPM
ETHYLBENZENE	5	308.9	1.000 PPM
MP XYLENE	6	332.0	2.000 PPM

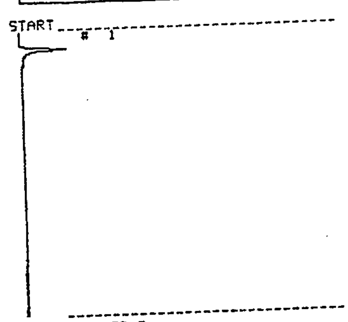
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 12: 4
ANALYSIS # 2 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 03-001MW 15'

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.5	3.3 US

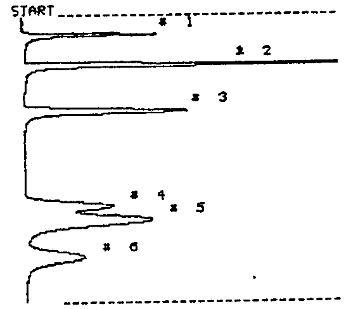
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 12:49
ANALYSIS # 3 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 03-001MW 35FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.5	611.0 mUS

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 14:19
ANALYSIS # 4 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.2	1.7 US
UNKNOWN	2	79.2	5.3 US
UNKNOWN	3	152.7	4.4 US
UNKNOWN	4	302.9	4.3 US
UNKNOWN	5	325.1	8.2 US
UNKNOWN	6	383.7	3.6 US

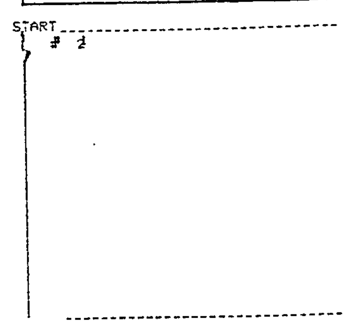
PHOTOVAC

CALIBRATED PEAK 2,BENZENE

SAMPLE LIBRARY 1 MAY 9 1994 14:21
ANALYSIS # 4 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.2	1.000 PPM
BENZENE	2	79.2	1.000 PPM
TOLUENE	3	152.7	1.000 PPM
ETHYLBENZENE	4	302.9	1222. PPB
MP XYLENE	5	325.1	2.300 PPM
O XYLENE	6	383.7	1.000 PPM

PHOTOVAC

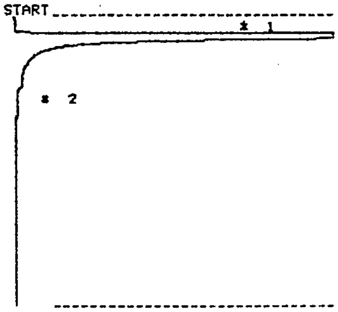


STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 14:30
ANALYSIS # 5 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 03-001MW 55FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.2	36.20 PPB
UNKNOWN	2	40.6	15.5 mUS

PHOTOVAC

START

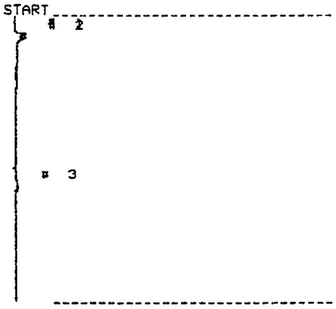


STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 15:39
ANALYSIS # 6 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 03-001MW 50'

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	34.5	11.31 PPM

PHOTOVAC

START

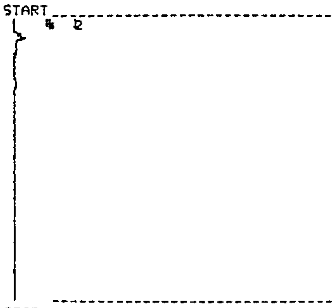


STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 15:48
ANALYSIS # 7 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 03-001MW 80FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	31.7	51.13 PPB
UNKNOWN	2	37.5	47.3 mVS
UNKNOWN	3	269.6	9.3 mVS

PHOTOVAC

START

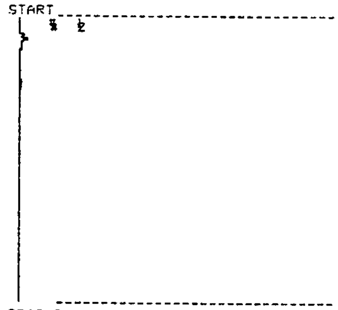


STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 16:21
ANALYSIS # 8 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 03-001MW 100FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	30.3	23.50 PPB
UNKNOWN	2	37.3	63.3 mVS

PHOTOVAC

START



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 9 1994 16:29
ANALYSIS # 9 M HENSON
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	31.8	12.59 PPB
UNKNOWN	2	38.2	50.2 mVS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
MTBE	1	32.2	1.000 PPM
BENZENE	2	73.2	1.000 PPM
TOLUENE	3	152.7	1.000 PPM
ETHYLBENZENE	4	302.5	1.000 PPM
MP XYLENE	5	325.1	2.000 PPM
O XYLENE	6	363.7	1.000 PPM

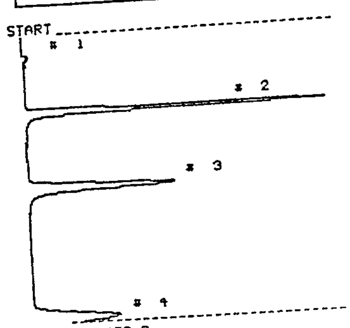
PHOTOVAC

CALIBRATED PEAK 2,BENZENE

SAMPLE LIBRARY 1 MAY 10 1994 10:48
ANALYSIS # 2 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	34.5	1000. PPB
BENZENE	2	86.2	1000. PPB
TOLUENE	3	162.1	1.000 PPM
ETHYLBENZENE	4	318.8	1000. PPB
MP XYLENE	5	342.2	2.000 PPM
O XYLENE	6	404.1	1000. PPB

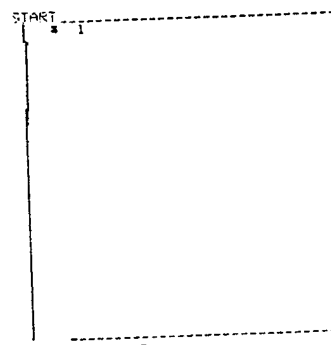
PHOTOVAC



STOP @ 452.0
SAMPLE LIBRARY 1 MAY 10 1994 10:33
ANALYSIS # 1 M HENSON
INTERNAL TEMP 21 ROSLYN ANGS
GAIN 2 [redacted]

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	36.5	51.4 mUS
UNKNOWN	2	118.9	6.0 US
UNKNOWN	3	236.5	5.3 US

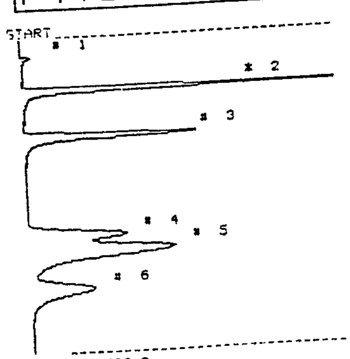
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 MAY 10 1994 11: 9
ANALYSIS # 3 M HENSON
INTERNAL TEMP 24 ROSLYN ANGS [redacted] 140'
GAIN 2 03-001MW

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.8	63.34 PPB

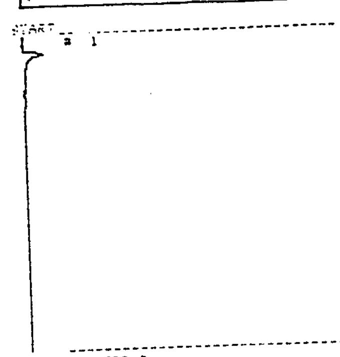
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 MAY 10 1994 10:45
ANALYSIS # 2 M HENSON
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	34.5	100.0 mUS
UNKNOWN	2	86.2	5.7 US
UNKNOWN	3	162.1	5.2 US
UNKNOWN	4	318.8	4.9 US
UNKNOWN	5	342.2	11.3 US
UNKNOWN	6	404.1	4.6 US

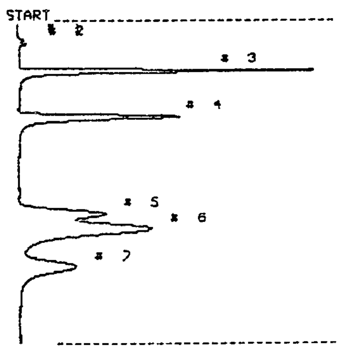
PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 MAY 10 1994 12: 9
ANALYSIS # 4 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 03-001MW 153FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	34.5	3.816 PPM

PHOTOVAC



STOP @ 500.0
SAMPLE LIBRARY 1 MAY 11 1994 15:20
ANALYSIS # 1 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 [redacted]

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	31.6	549.6 PPB
MTBE	2	37.6	433.8 PPB
BENZENE	3	79.4	271.7 PPB
TOLUENE	4	152.3	339.6 PPB
ETHYLBENZENE	5	304.1	852.0 PPB
ETHYLBENZENE	6	326.2	1.884 PPM
O XYLENE	7	384.9	953.1 PPB

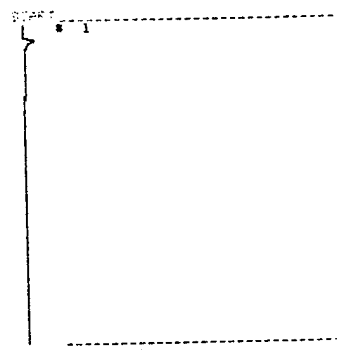
PHOTOVAC

CALIBRATED PEAK 3,BENZENE

SAMPLE LIBRARY 1 MAY 11 1994 15:25
ANALYSIS # 1 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.6	55.0 mVS
MTBE	2	37.6	1.000 PPM
BENZENE	3	79.4	1.000 PPM
TOLUENE	4	152.3	1.000 PPM
ETHYLBENZENE	5	304.1	1.000 PPM
MP XYLENE	6	326.2	2.000 PPM
O XYLENE	7	384.9	1000. PPB

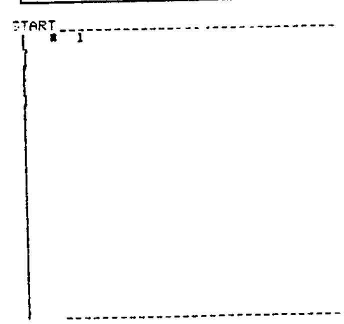
PHOTOVAC



STOP @ 500.3
SAMPLE LIBRARY 1 MAY 11 1994 16: 7
ANALYSIS # 2 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 02-001MW 30FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.5	103.7 mVS

PHOTOVAC



STOP @ 450.3
SAMPLE LIBRARY 1 MAY 11 1994 16:48
ANALYSIS # 3 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 02-001MW 50FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.5	3.4 mVS

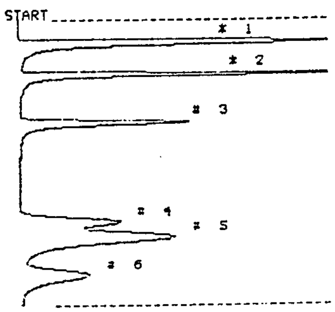
PHOTOVAC

MAY 12 1994 8:32

FIELD: 30
POWER: 25

SAMPLE	0.0	10.0
CAL	0.0	0.0
EVENT 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 8:42
ANALYSIS # 1 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 [redacted]

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	35.7	11.7 US
UNKNOWN	2	86.5	6.6 US
UNKNOWN	3	163.9	5.1 US
UNKNOWN	4	321.8	5.1 US
UNKNOWN	5	345.2	11.6 US

PHOTOVAC

CALIBRATED PEAK 2,BENZENE

SAMPLE LIBRARY 1 MAY 12 1994 8:44
ANALYSIS # 1 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 [redacted]

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	35.7	1.000 PPM
BENZENE	2	86.5	1.000 PPM
TOLUENE	3	163.9	1.000 PPM
ETHYLBENZENE	4	321.8	1.000 PPM
MP XYLENE	5	345.2	2.000 PPM

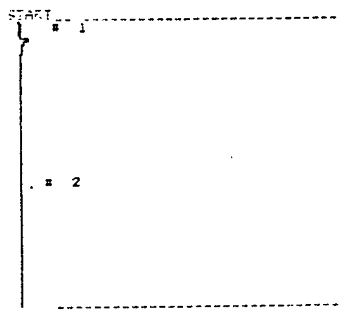
PHOTOVAC

CALIBRATED PEAK 2,BENZENE

SAMPLE LIBRARY 1 MAY 12 1994 8:46
ANALYSIS # 1 M HENSON
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 1 PPM BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	35.7	1.000 PPM
BENZENE	2	86.5	1.000 PPM
TOLUENE	3	163.9	1.000 PPM
ETHYLBENZENE	4	321.8	1.000 PPM
MP XYLENE	5	345.2	2.000 PPM

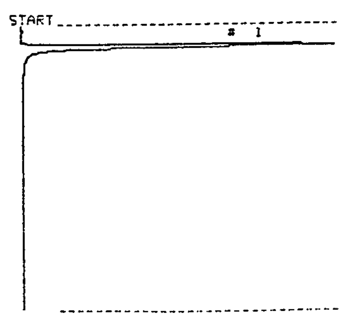
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 10:22
ANALYSIS # 2 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 02-001MW 85FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	32.3	83.7 mUS

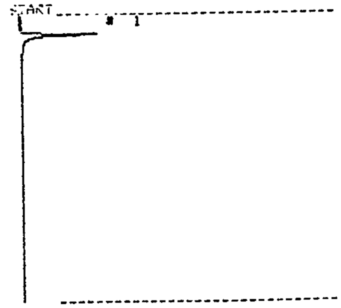
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 11: 8
ANALYSIS # 3 M HENSON
INTERNAL TEMP 25 ROSLYN ANGS
GAIN 2 02-001MW 100FTP

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	34.5	334.7 PPB

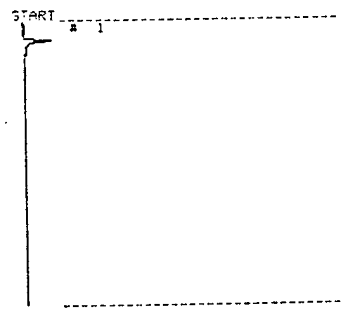
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 13: 5
ANALYSIS # 4 E PARKER
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 02-001MW 130FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.8	73.22 PPB

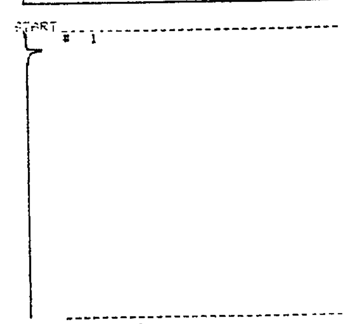
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 13:15
ANALYSIS # 5 E PARKER
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 AIR BLANK

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.7	26.40 PPB

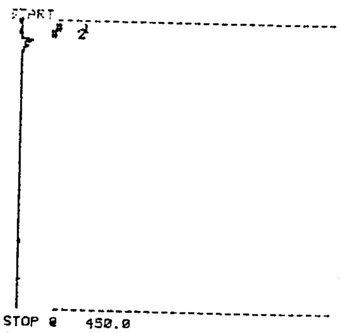
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 14:41
ANALYSIS # 6 E PARKER
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 02-001MW 145FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.7	153.1 mUS

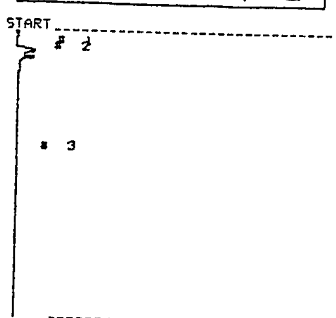
PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 16:21
ANALYSIS # 7 E PARKER
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 02-001MW 155FT

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	32.8	9.213 PPB
UNKNOWN	2	41.3	23.8 mVS

PHOTOVAC



STOP @ 450.0
SAMPLE LIBRARY 1 MAY 12 1994 17:28
ANALYSIS # 8 E PARKER
INTERNAL TEMP 26 ROSLYN ANGS
GAIN 2 02-001MW AQUIFER

COMPOUND NAME	PEAK	R.T.	AREA/PPM
MTBE	1	35.7	21.52 PPB
UNKNOWN	2	45.4	77.2 mVS

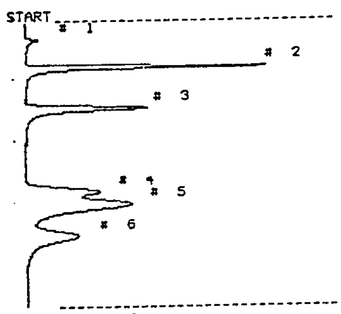
PHOTOVAC

MAY 17 1994 8:24

FIELD: 30
POWER: 25

SAMPLE	0.0	10.0
CAL	0.0	0.0
EVENT 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

PHOTOVAC



STOP @ 450.3
SAMPLE LIBRARY 1 MAY 17 1994 8:49
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 23 ROSLYN ANGS
GAIN 2 BTEX

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.3	118.1 mVS
UNKNOWN	2	74.2	4.0 VS
UNKNOWN	3	140.1	3.4 VS
UNKNOWN	4	271.1	3.3 VS
UNKNOWN	5	290.9	7.4 VS
UNKNOWN	6	341.0	3.7 VS

PHOTOVAC

1 COMPOUND	ID #	R.T.	LIMIT
BENZENE	1	74.2	1.000 PPM
TOLUENE	2	140.1	1.000 PPM
ETHYLBENZENE	3	271.1	1.000 PPM
MP-XYLENE	4	290.9	1.000 PPM
O-XYLENE	5	341.0	1.000 PPM
MP XYLENE	6	290.9	1.000 PPM

PHOTOVAC

CALIBRATED PEAK 2,TOLUENE

SAMPLE LIBRARY 1 MAY 17 1994 8:59
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 BTEX

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.9	118.1 mVS
TOLUENE	2	74.2	1.000 PPM
ETHYLBENZENE	3	140.1	887.8 PPB
UNKNOWN	4	271.1	3.3 VS
UNKNOWN	5	290.9	7.4 VS
UNKNOWN	6	341.0	3.7 VS

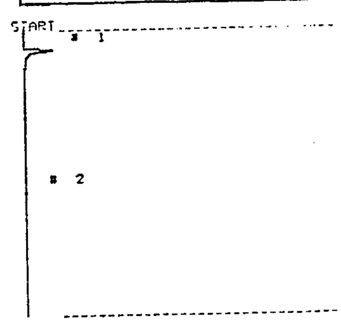
PHOTOVAC

CALIBRATED PEAK 2,BENZENE

SAMPLE LIBRARY 1 MAY 17 1994 9: 1
ANALYSIS # 1 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 BTEX

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.9	118.1 mVS
BENZENE	2	74.2	1000. PPB
TOLUENE	3	140.1	1000. PPB
ETHYLBENZENE	4	271.1	1000. PPB
MP-XYLENE	5	290.9	1000. PPB
O-XYLENE	6	341.0	1000. PPB

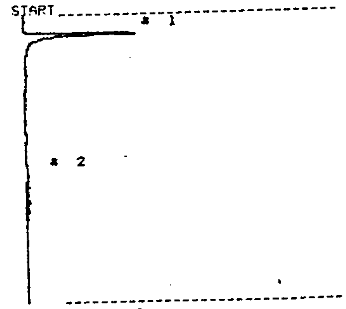
PHOTOVAC



STOP @ 450.3
SAMPLE LIBRARY 1 MAY 17 1994 9:11
ANALYSIS # 2 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 MW-001

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	22.5	351.3 mVS

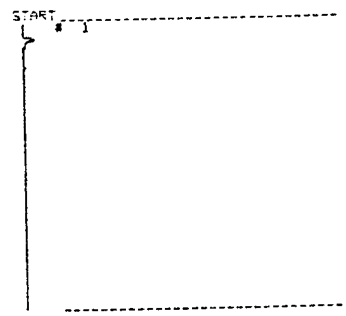
PHOTOVAC



STOP @ 450.3
SAMPLE LIBRARY 1 MAY 17 1994 9:21
ANALYSIS # 3 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 MW-002

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.3	1.6 VS
ETHYLBENZENE	2	249.9	12.00 PPB

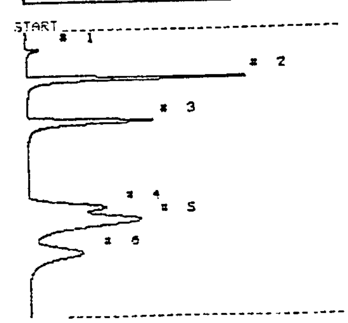
PHOTOVAC



STOP @ 450.3
SAMPLE LIBRARY 1 MAY 17 1994 9:31
ANALYSIS # 4 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 MW-003

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	30.3	143.9 mVS

PHOTOVAC



STOP @ 450.3
SAMPLE LIBRARY 1 MAY 17 1994 9:41
ANALYSIS # 5 J BYRD JR
INTERNAL TEMP 22 ROSLYN ANGS
GAIN 2 BTEX STD

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	31.7	128.4 mVS
BENZENE	2	77.2	356.7 PPB
TOLUENE	3	145.1	1.046 PPM
ETHYLBENZENE	4	280.1	1.081 PPM
MP-XYLENE	5	300.2	1.085 PPM
O-XYLENE	6	351.9	1.041 PPM

APPENDIX E

AQUIFER SLUG TEST DATA

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SECTION E.1 INTRODUCTION

Three rising head slug tests were conducted to investigate the hydraulic properties of the Upper Glacial Aquifer underlying the Roslyn ANGS at Roslyn, New York. The slug test method is a technique used to calculate values of transmissivity (T). In the rising head slug method conducted at monitoring wells installed at the Station, a decontaminated acrylic slug, 2.5" in diameter and 32" in length, was lowered into the water column until completely submerged and the maximum displacement of water had occurred. After the water level rose in response to the slug, the water level in the well was monitored until it returned to the initial static level. The slug was removed from the well after the pre-displacement water level had been reached. The water level initially dropped as the slug was being removed from the water, and then rose back toward the initial static level in the well. The rise in water level was then measured at closely spaced time intervals. A pressure transducer and automatic recorder were used to collect data during testing.

Transmissivities were computed from slug test data using a software program known as STEP-MATCH which has been developed to automate the process of analyzing data from slug tests.

The raw data for each slug test and the curves generated by STEP-MATCH are included in this section.

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01-001 MW

SE1000C
Environmental Logger
05/17 14:27

Unit# 00601 Test 2

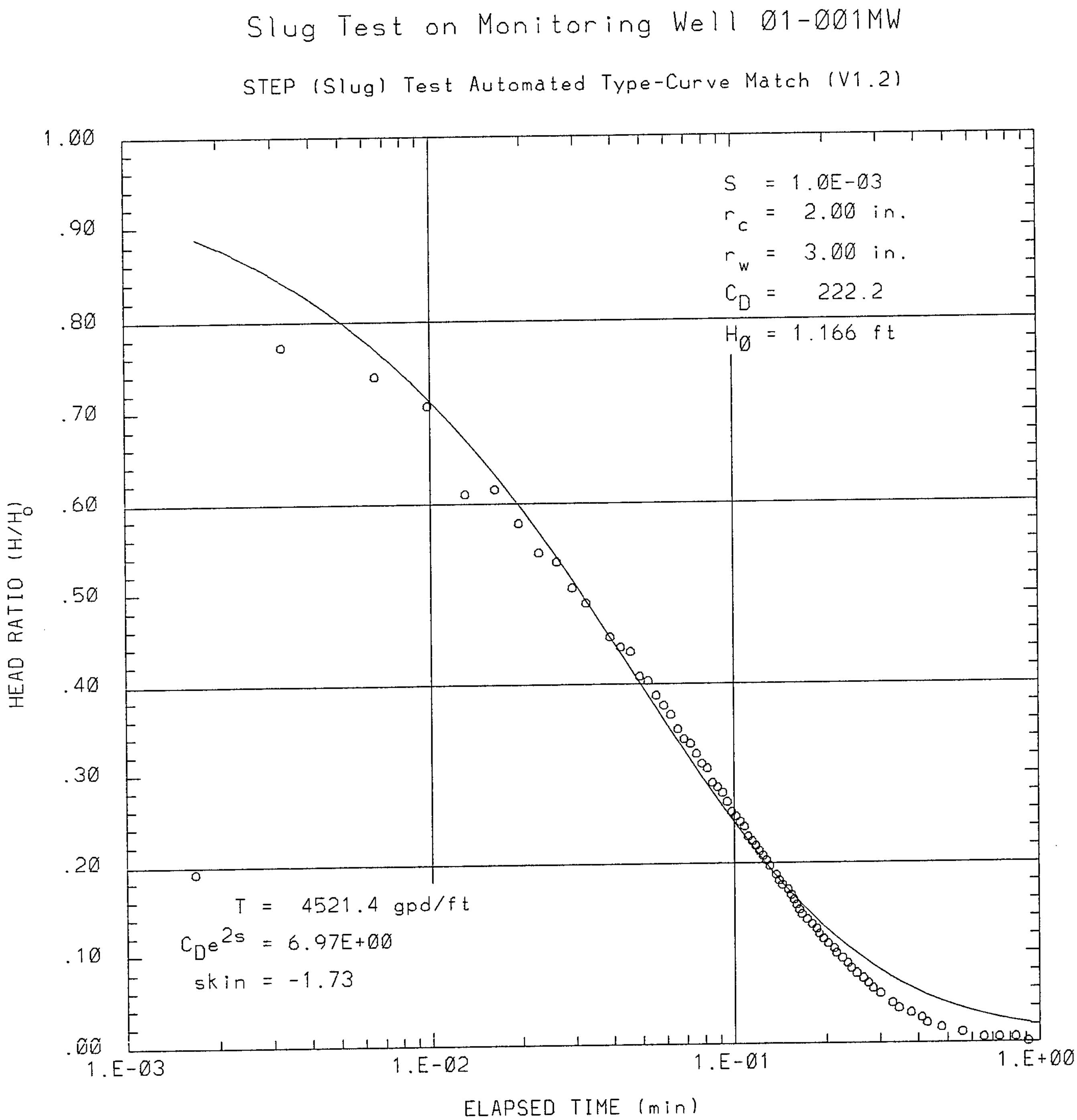
INPUT 1: Level (F) TOC

Reference 100.000
Linearity 0.030
Scale factor 20.090
Offset 0.060
Delay mSEC 50.000

Step 0 05/17 14:17:15

Elapsed Time	INPUT 1
0.0000	100.057
0.0033	100.070
0.0066	101.077
0.0100	100.387
0.0133	101.223
0.0166	100.957
0.0200	100.919
0.0233	100.881
0.0266	100.767
0.0300	100.773
0.0333	100.729
0.0366	100.691
0.0400	100.697
0.0433	100.646
0.0466	100.627
0.0500	100.627
0.0533	100.583
0.0566	100.570
0.0600	100.564
0.0633	100.532
0.0666	100.526
0.0700	100.507
0.0733	100.494
0.0766	100.482
0.0800	100.463
0.0833	100.450
0.0866	100.444
0.0900	100.431
0.0933	100.418
0.0966	100.412
0.1000	100.393
0.1033	100.387
0.1066	100.380
0.1100	100.368
0.1133	100.355
0.1166	100.349
0.1200	100.342
0.1233	100.336
0.1266	100.323
0.1300	100.317
0.1333	100.311
0.1366	100.304
0.1400	100.298
0.1433	100.292
0.1466	100.285
0.1500	100.279
0.1533	100.273
0.1566	100.266
0.1600	100.260
0.1633	100.254
0.1666	100.254
0.1700	100.247
0.1733	100.241
0.1766	100.234
0.1800	100.228
0.1833	100.222
0.1866	100.222
0.1900	100.215
0.1933	100.215
0.1966	100.209
0.2000	100.209
0.2033	100.203
0.2066	100.196
0.2100	100.196
0.2133	100.190
0.2166	100.190
0.2200	100.184
0.2233	100.184
0.2266	100.184
0.2300	100.177
0.2333	100.171
0.2366	100.171
0.2400	100.171
0.2433	100.165
0.2466	100.165
0.2500	100.165
0.2533	100.158
0.2566	100.158
0.2600	100.152
0.2633	100.152
0.2666	100.152
0.2700	100.146
0.2733	100.146
0.2766	100.146
0.2800	100.146
0.2833	100.139
0.2866	100.139
0.2900	100.139
0.2933	100.133
0.2966	100.133
0.3000	100.133
0.3033	100.127
0.3066	100.127
0.3100	100.127
0.3133	100.127
0.3166	100.127
0.3200	100.120
0.3233	100.120
0.3266	100.120
0.3300	100.120
0.3333	100.120
0.3500	100.108
0.3666	100.101
0.3833	100.101
0.4000	100.095
0.4166	100.095
0.4333	100.089
0.4500	100.082
0.4666	100.082
0.4833	100.082
0.5000	100.076
0.5166	100.076
0.5333	100.076
0.5500	100.076
0.5666	100.076
0.5833	100.070
0.6000	100.070
0.6166	100.070
0.6333	100.070
0.6500	100.063
0.6666	100.070
0.6833	100.063
0.7000	100.063
0.7166	100.063
0.7333	100.063
0.7500	100.063
0.7666	100.063
0.7833	100.063
0.8000	100.063
0.8166	100.063
0.8333	100.063
0.8500	100.063
0.8666	100.063
0.8833	100.063
0.9000	100.063
0.9166	100.063
0.9333	100.063
0.9500	100.057
0.9666	100.063
0.9833	100.057
1.0000	100.057
1.2000	100.057
1.4000	100.057
1.6000	100.057
1.8000	100.057
2.0000	100.057
2.2000	100.057
2.4000	100.057
2.6000	100.057
2.8000	100.057
3.0000	100.057
3.2000	100.051
3.4000	100.051
3.6000	100.051
3.8000	100.057
4.0000	100.057
4.2000	100.057
4.4000	100.051
4.6000	100.057
4.8000	100.057
5.0000	100.057
5.2000	100.051
5.4000	100.057
5.6000	100.051
5.8000	100.051
6.0000	100.057
6.2000	100.057
6.4000	100.051
6.6000	100.057
6.8000	100.057
7.0000	100.057
7.2000	100.057
7.4000	100.057
7.6000	100.057
7.8000	100.057
8.0000	100.057
8.2000	100.057
8.4000	100.051
8.6000	100.051
8.8000	100.051
9.0000	100.057
9.2000	100.057
9.4000	100.057
9.6000	100.057
9.8000	100.057
10.0000	100.057

END


Slug Test on Monitoring Well Ø1-ØØ1MW
STEP (Slug) Test Automated Type-Curve Match (V1.2)
S = 1.ØE-Ø3
r_c = 2.ØØ in.
r_w = 3.ØØ in.
C_D = 222.2
$H_Ø$ = 1.166 ft
T = 4521.4 gpd/ft
C_De^{2s} = 6.97E+ØØ
skin = -1.73
HEAD RATIO (H/H$_o$)
1.ØØ
.9Ø
.8Ø
.7Ø
.6Ø
.5Ø
.4Ø
.3Ø
.2Ø
.1Ø
.ØØ
1.E-Ø3
1.E-Ø2
1.E-Ø1
1.E+ØØ
ELAPSED TIME (min)

SE1000C
Environmental Logger
05/17 15:44
02-001 MW
Unit# 00601 Test 4

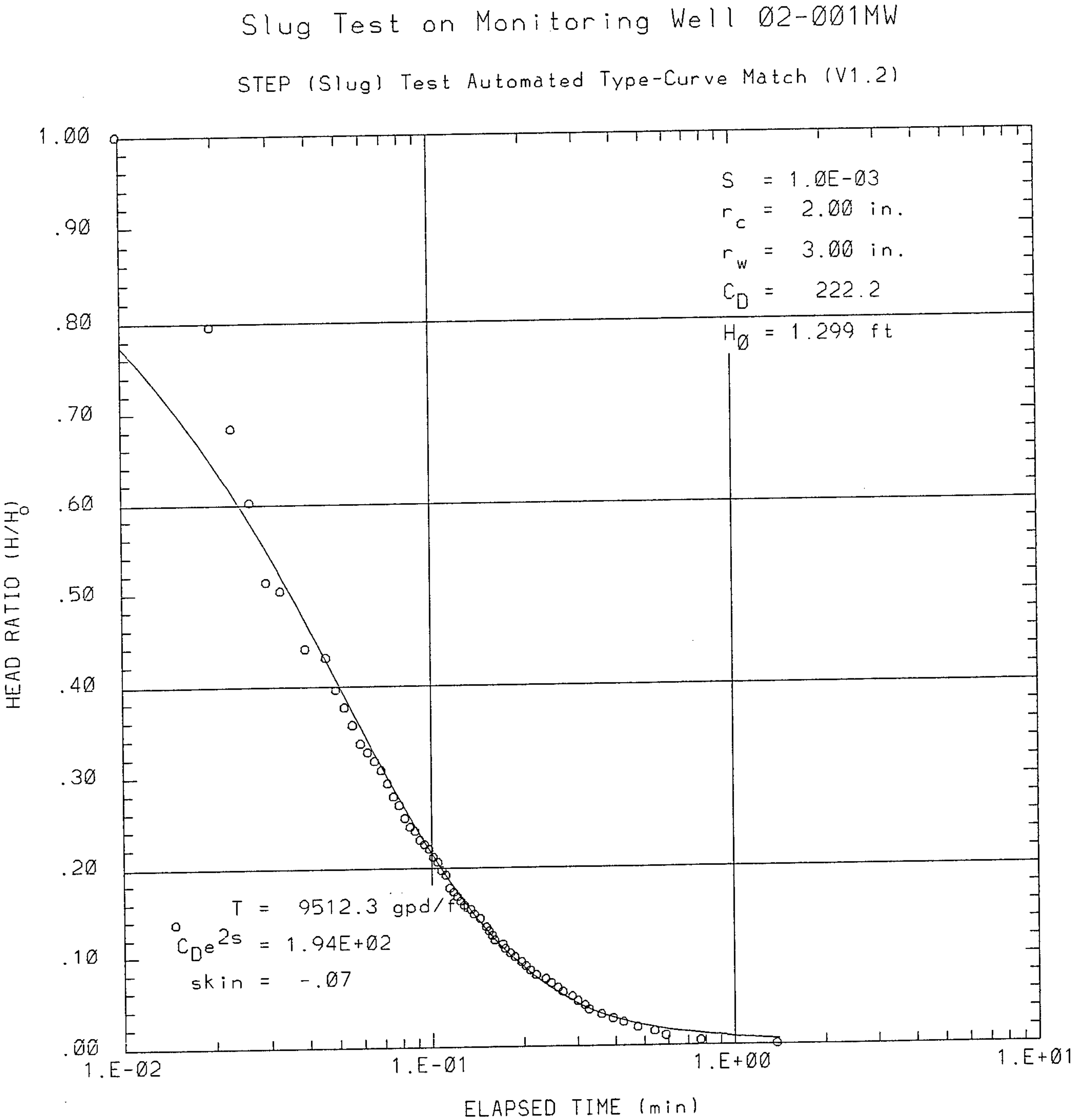
INPUT 1: Level (F) TOC

Reference	100.000
Linearity	0.030
Scale factor	20.090
Offset	0.060
Delay mSEC	50.000

Step 0 05/17 15:33:56

Elapsed Time	INPUT 1
0.0000	100.146
0.0033	100.805
0.0066	101.166
0.0100	101.299
0.0133	100.964
0.0166	99.448
0.0200	101.033
0.0233	100.888
0.0266	100.780
0.0300	100.666
0.0333	100.653
0.0366	100.666
0.0400	100.571
0.0433	100.571
0.0466	100.558
0.0500	100.513
0.0533	100.488
0.0566	100.463
0.0600	100.437
0.0633	100.425
0.0666	100.412
0.0700	100.399
0.0733	100.380
0.0766	100.361
0.0800	100.349
0.0833	100.330
0.0866	100.317
0.0900	100.311
0.0933	100.298
0.0966	100.292
0.1000	100.285
0.1033	100.273
0.1066	100.266
0.1100	100.254
0.1133	100.247
0.1166	100.228
0.1200	100.222
0.1233	100.216
0.1266	100.209
0.1300	100.203
0.1333	100.203
0.1366	100.197
0.1400	100.190
0.1433	100.190
0.1466	100.184
0.1500	100.178
0.1533	100.171
0.1566	100.165
0.1600	100.159
0.1633	100.152
0.1666	100.152
0.1700	100.152
0.1733	100.146
0.1766	100.140
0.1800	100.140
0.1833	100.133
0.1866	100.133
0.1900	100.127
0.1933	100.127
0.1966	100.127
0.2000	100.120
0.2033	100.120
0.2066	100.114
0.2100	100.114
0.2133	100.108
0.2166	100.108
0.2200	100.108
0.2233	100.101
0.2266	100.101
0.2300	100.095
0.2333	100.101
0.2366	100.101
0.2400	100.095
0.2433	100.095
0.2466	100.095
0.2500	100.089
0.2533	100.089
0.2566	100.089
0.2600	100.089
0.2633	100.082
0.2666	100.082
0.2700	100.082
0.2733	100.076
0.2766	100.076
0.2800	100.076
0.2833	100.076
0.2866	100.076
0.2900	100.076
0.2933	100.070
0.2966	100.070
0.3000	100.070
0.3033	100.070
0.3066	100.063
0.3100	100.063
0.3133	100.063
0.3166	100.063
0.3200	100.063
0.3233	100.057
0.3266	100.057
0.3300	100.057
0.3333	100.051
0.3500	100.051
0.3666	100.044
0.3833	100.044
0.4000	100.038
0.4166	100.038
0.4333	100.032
0.4500	100.032
0.4666	100.032
0.4833	100.025
0.5000	100.025
0.5166	100.025
0.5333	100.025
0.5500	100.019
0.5666	100.019
0.5833	100.019
0.6000	100.013
0.6166	100.019
0.6333	100.013
0.6500	100.013
0.6666	100.013
0.6833	100.013
0.7000	100.013
0.7166	100.013
0.7333	100.013
0.7500	100.013
0.7666	100.013
0.7833	100.006
0.8000	100.006
0.8166	100.006
0.8333	100.006
0.8500	100.013
0.8666	100.006
0.8833	100.006
0.9000	100.006
0.9166	100.006
0.9333	100.006
0.9500	100.006
0.9666	100.006
0.9833	100.006
1.0000	100.006
1.2000	100.006
1.4000	100.000
1.6000	100.000
1.8000	100.000
2.0000	100.000
2.2000	100.000
2.4000	100.000
2.6000	100.000
2.8000	100.000
3.0000	100.000
3.2000	100.000
3.4000	100.000
3.6000	100.000
3.8000	100.000
4.0000	100.000
4.2000	100.000
4.4000	100.000
4.6000	100.000
4.8000	100.000
5.0000	100.000
5.2000	100.000
5.4000	100.000
5.6000	100.000
5.8000	100.000
6.0000	100.000
6.2000	100.000
6.4000	100.000
6.6000	100.000
6.8000	100.000
7.0000	100.000
7.2000	100.000
7.4000	100.000
7.6000	100.000
7.8000	100.000
8.0000	100.000
8.2000	100.000
8.4000	100.000
8.6000	100.000
8.8000	100.000
9.0000	100.000
9.2000	100.006
9.4000	100.000
9.6000	100.000
9.8000	100.006
10.0000	100.000

END



Slug Test on Monitoring Well 02-001MW
STEP (Slug) Test Automated Type-Curve Match (V1.2)
S = 1.0E-03
r_c = 2.00 in.
r_w = 3.00 in.
C_D = 222.2
H_0 = 1.299 ft
T = 9512.3 gpd/ft
C_D e^2s = 1.94E+02
skin = -.07
HEAD RATIO (H/H_o)
1.00
.90
.80
.70
.60
.50
.40
.30
.20
.10
.00
1.E-02
1.E-01
1.E+00
1.E+01
ELAPSED TIME (min)

03-001 MW

SE1000C
Environmental Logger
05/17 17:25

Unit# 00601 Test 7

INPUT 1: Level (F) TOC

Reference	100.000
Linearity	0.030
Scale factor	20.090
Offset	0.060
Delay mSEC	50.000

Step 0 05/17 17:15:26

Elapsed Time	INPUT 1
0.0000	100.051
0.0033	100.082
0.0066	100.406
0.0100	100.964
0.0133	101.243
0.0166	100.881
0.0200	100.114
0.0233	100.640
0.0266	101.217
0.0300	100.856
0.0333	100.742
0.0366	100.710
0.0400	100.666
0.0433	100.621
0.0466	100.590
0.0500	100.558
0.0533	100.533
0.0566	100.501
0.0600	100.482
0.0633	100.456
0.0666	100.431
0.0700	100.412
0.0733	100.393
0.0766	100.380
0.0800	100.361
0.0833	100.342
0.0866	100.330
0.0900	100.317
0.0933	100.311
0.0966	100.298
0.1000	100.285
0.1033	100.279
0.1066	100.266
0.1100	100.260
0.1133	100.247
0.1166	100.241
0.1200	100.235
0.1233	100.228
0.1266	100.222
0.1300	100.216
0.1333	100.209
0.1366	100.203
0.1400	100.197
0.1433	100.197
0.1466	100.190
0.1500	100.184
0.1533	100.178
0.1566	100.178
0.1600	100.171
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0.1666	100.165
0.1700	100.159
0.1733	100.159
0.1766	100.152
0.1800	100.152
0.1833	100.146
0.1866	100.146
0.1900	100.139
0.1933	100.139
0.1966	100.139
0.2000	100.133
0.2033	100.133
0.2066	100.127
0.2100	100.127
0.2133	100.127
0.2166	100.120
0.2200	100.120
0.2233	100.120
0.2266	100.114
0.2300	100.114
0.2333	100.114
0.2366	100.114
0.2400	100.114
0.2433	100.108
0.2466	100.108
0.2500	100.108
0.2533	100.108
0.2566	100.108
0.2600	100.101
0.2633	100.101
0.2666	100.101
0.2700	100.101
0.2733	100.101
0.2766	100.095
0.2800	100.095
0.2833	100.095
0.2866	100.095
0.2900	100.095
0.2933	100.089
0.2966	100.089
0.3000	100.089
0.3033	100.089
0.3066	100.089
0.3100	100.089
0.3133	100.089
0.3166	100.089
0.3200	100.082
0.3233	100.082
0.3266	100.082
0.3300	100.082
0.3333	100.082
0.3500	100.076
0.3666	100.076
0.3833	100.070
0.4000	100.070
0.4166	100.070
0.4333	100.063
0.4500	100.063
0.4666	100.063
0.4833	100.057
0.5000	100.057
0.5166	100.057
0.5333	100.057
0.5500	100.051
0.5666	100.051
0.5833	100.051
0.6000	100.051
0.6166	100.051
0.6333	100.051
0.6500	100.051
0.6666	100.051
0.6833	100.051
0.7000	100.044
0.7166	100.051
0.7333	100.044
0.7500	100.044
0.7666	100.044
0.7833	100.044
0.8000	100.044
0.8166	100.044
0.8333	100.044
0.8500	100.044
0.8666	100.044
0.8833	100.044
0.9000	100.044
0.9166	100.044
0.9333	100.044
0.9500	100.044
0.9666	100.044
0.9833	100.044
1.0000	100.044
1.2000	100.044
1.4000	100.044
1.6000	100.044
1.8000	100.038
2.0000	100.038
2.2000	100.044
2.4000	100.038
2.6000	100.038
2.8000	100.044
3.0000	100.038
3.2000	100.044
3.4000	100.038
3.6000	100.038
3.8000	100.044
4.0000	100.038
4.2000	100.038
4.4000	100.044
4.6000	100.044
4.8000	100.044
5.0000	100.044
5.2000	100.044
5.4000	100.044
5.6000	100.044
5.8000	100.044
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7.0000	100.044
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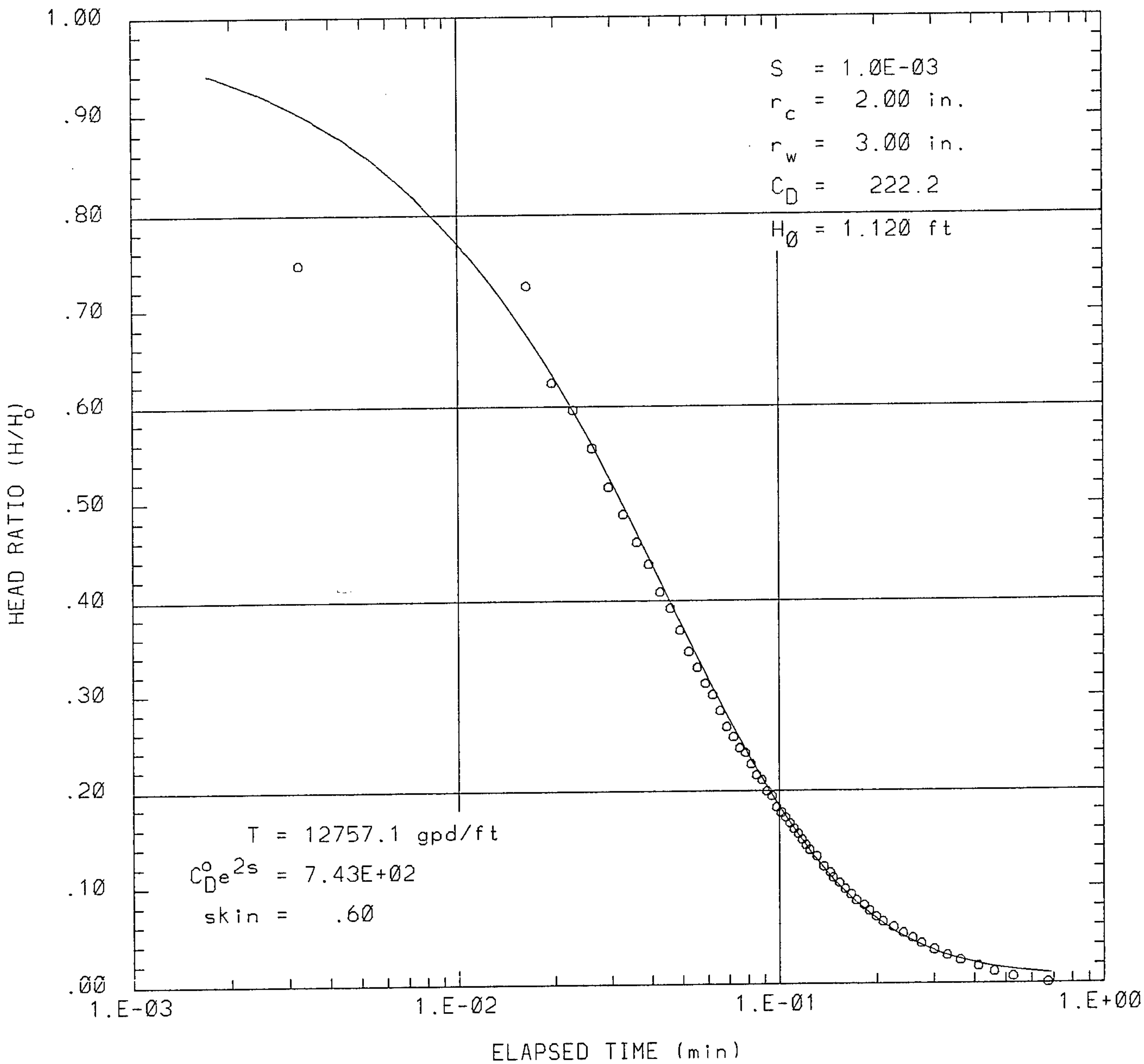
8.6000	100.044
8.8000	100.044
9.0000	100.044
9.2000	100.044
9.4000	100.044
9.6000	100.044
9.8000	100.044
10.0000	100.044

END

Slug Test on Monitoring Well 03-001MW

STEP (Slug) Test Automated Type-Curve Match (V1.2)



APPENDIX F

FIELD NOTES

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SUN	MON	TUE	WED	THU	FRI	SAT
12 FRI 9/10/93 • Staked SGS points. • Obtained digging Permit	13 Soil Gas Survey Site 1, 3 23 points surveyed	14 Soil Gas Survey Site 1, 2, 3 24 points Surveyed	15 Soil Gas Survey Complete Site No. 2 11 points	16 Meet Drillers BEGIN on PZ 1.	17 Abandoned PZ 1. Lined up Soil Sampling for Monday QC Training	18 PAGE Preparing Sample Packages
19 Preparing Sample Packages	20 Soil Borings 03-001 BH 03-002 BH 03-003 BH 03-004 BH 03-006 BH	21 Soil Borings 01-001 BH 01-003 BH 01-004 BH 02-001 BH 02-003 BH	22 Grout Borings Drum Inventory EB - FB 02-006 BH HRS Walk	23 02-007 BH 02-005 BH 02-004 BH 02-008 BH EB - FB	24 Surveyors Drilling Ests: Grout Hand Augers Re-flag location for Surveyors.	25 CONTENTS REFERENCE No Job related Activities
26 Complete Soil Descriptions Compile GC Data Info Closeout	27 Walk Site w/ Surveyor HRS Info Site Closeout	28 Pack Equip DEPART Site Return to SA	29	30	1	2 DATE

DAY 1 10 SEPTEMBER 1993

0745 Arrive at Roslyn ANGS. Earl Parker (EP) and Myrna Rodriquez (MR) Meet with Capt. Larry Johnson Roslyn ANGS Base Civil Engineer.

Introductions and a general review of activities planned for the SI are discussed. Events for the soil gas survey to begin on Mon. (9/13) are discussed.

0810 M.R. and E.P. depart Cpt. Johnson's office for a walk of the three sites.

* Site No. 1 - has a large pile of dirt covered w/ visqueen from UST removals. Dirt is south of Bldg 36 and covers a few planned SGS points.

* Site No. 2 - has been changed alot due to a UST removal. A large pile of dirt blocks access for SGS and drilling activities.

* Site No. 3 - Appears relatively unobstructed. Begins to rain.

Weather - Cloudy and Cool. Highs: Mid 80s. Overcast w/ scattered showers.

0840 MR and EP depart Site. Prepare to drive to Newark Airport to obtain Large Box of supplies.

1330 Arrive at Newark Airport American Airlines Cargo Terminal and get box of supplies.

1430 Arrive back at the base and meet w/ Cpt Johnson. Will grid the SGS points. Meet with John Warner, Base plumber to locate underground lines at the sites. Walk all 3 Sites.

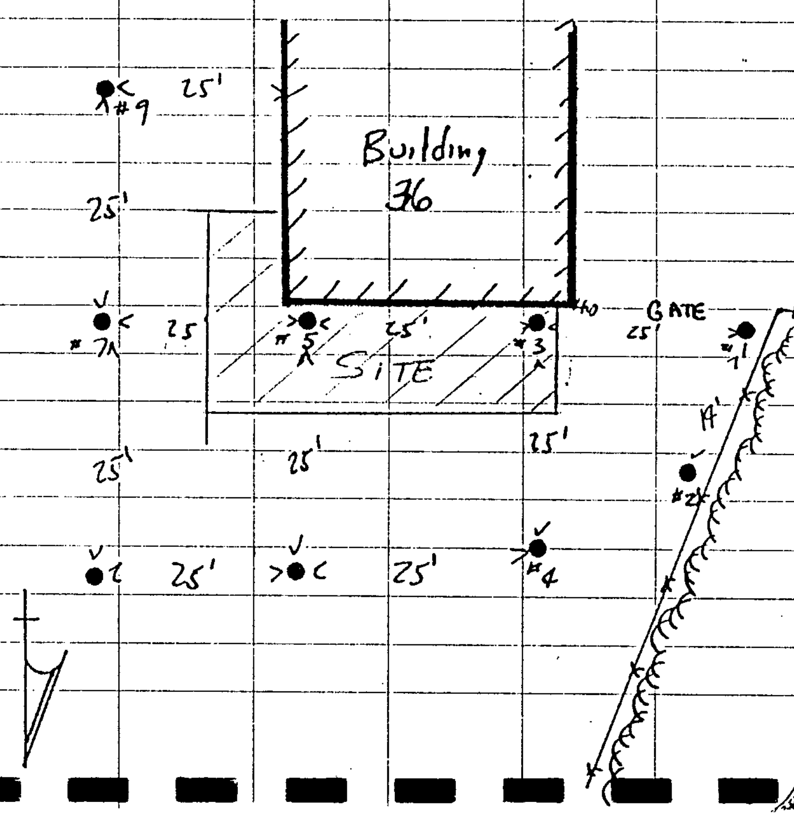
* Site No. 1 - locate an old grid of underground utilities. Will locate SGS points to avoid grid and lay at least 3 [illegible]

* Site No. 2 - locate sewer line parallel to back of Bldg 16.

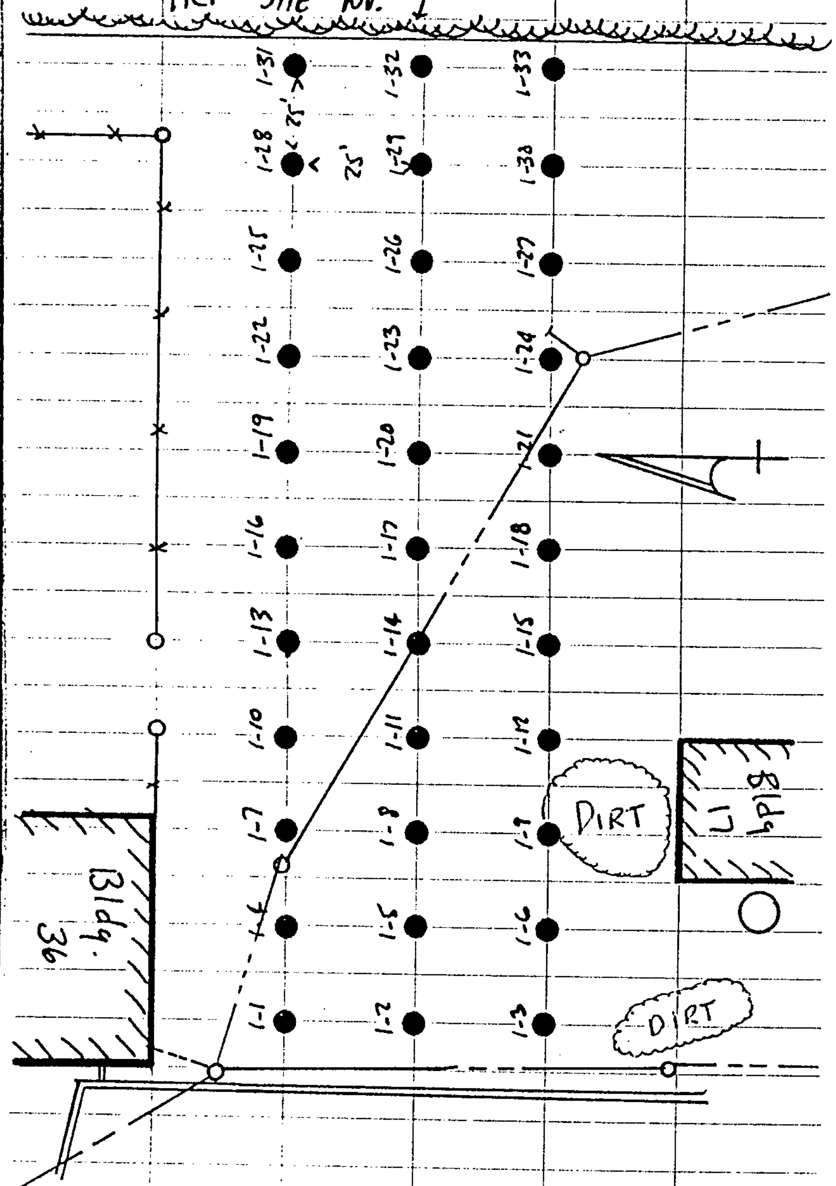
* Site No. 3 - no apparent utilities.

1700 M.R. and E.P. finish laying out SGS grid. Grid outlined below:

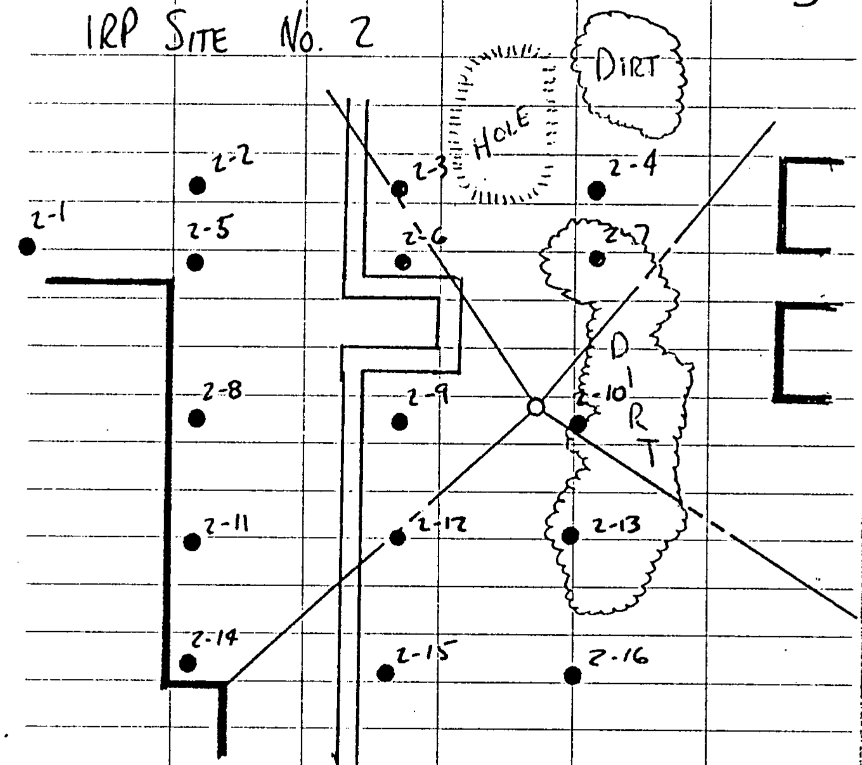
IRP Site No. 3



IRP Site No. 1



IRP Site No. 2



1710 E.P. and MR depart site for Hotel.

1730 E.P. and M.R. depart Hotel to pick up Jerry Arriaga (JA) at Airport. Very heavy traffic.

1830 pick up J.A.

1915 Arrive back at Hotel

Earl E. Parks 9/10/93

11 hours

DAY 2 SATURDAY 11 Sept 93

No Work Related Activity Conducted

Earl E Park 9/11/93 Ø hrs

Day 3 Sunday 12 Sept 93

No Work Related Activity conducted.

* Meeting w/ MR and JA for tomorrows Activity.

Earl E Park 9/12/93 Ø hrs

Day 4 Monday 13 Sept 93

0745 Arrive at Site, EP and MR.
Meet with Lawrence Schermeyer and Robert Burns from Tracer Research Corp.
Walk through the site.

0800 Safety Briefing
SSO - Earl Parker for Jerry Arnaga
Myrna Rodriguez - OPTECH
Lawrence Schermeyer } Tracer
Robert Burns }

* Discussed HSP, route to Hospital, Emergency procedures.
* Discussed site Hazards such as power lines and underground utilities.
* Weather concerns. (Heat should not be a significant).
* Authorized the SGS Team to stop work immediately if they recognize a hazard.

Weather - Partly Cloudy and breezy.
Hi's : Mid 80's.
Ideal Weather.!

0820 Begin SGS at IRP Site No 3.
All SGS samples are shot twice. (Duplicates).
* EP and MR Measure all SGS points once drilled to draw a scaled map.

0950 E.P. and M.R. check utilities at site 1.

1020 J.A. Arrives at the Site. E.P. and J.A. walk sites.

1035 SGS Team finishes probe work at site No 3. Analytical work continues while Rob. patches up locations.

1110 SGS Team moves to Site 1. Begin on North row from East Side.

1130 Break for Lunch. SGS Team and OPTECH depart Site.

1200 Return from Lunch. Begin SGS work at Site 1.

1500 Finished SGS Points in North row.
20 SGS Points completed.
BEGIN Center row from the WEST Side.

1600 Finished SGS points for the day.
Beginning to patch holes and compile analytical results for the day.

Completed SITE No. 3 - 9 points
SITE No. 1 - 14 points

Daily TOTALS - 23 points

1630 SGS Team gives EP preliminary data from todays work. Departs site.

1645 E.P. M.R. And J.A. depart Site

1700 E.P. calculates SGS values for the day.

1830 Complete work for the day

Earl E Pash # 9/13/93 10.5 hrs

DAY 5 TUESDAY 14 SEPT 93

0730 E.P., M.R. And J.A. Arrive at the Site. SGS Team begins work on South line of SGS Points on Site 1. Based on yesterdays results at Site # 3, two points will be moved from the Site 1 grid to attempt to deliniate small hit in Site 3.

0815 Check water level in observation well (?) near fuel pumps in front of Bldg 16.
Water level = 19.54' Below casing.
Casing of flush mount - .2' BLS
∴ WL = 19.74' BLS.

0830 E.P. depart site for Hotel.

0900 Phoned OpTech. Talked to Debbie Zapalac. Relayed Mondays SGS information.

0930 Arrived at NyTest. Met with Joe Dockery, and Doug Sheeley. Coordinated on Analysis plan and schedule. Gave them location and types of Analysis samples.

Doug Sheeley took E.P. on a tour of the NYTEST Lab.
Meeting concluded with discussion of Methanol delivery for tomorrow (Wed 9/15) and Meeting on Monday (9/20) to discuss the delivery schedule and volume.

1115 E.P. departs NyTest for ~~Lab.~~ Site

1130 E.P. Arrives at Site. SGS Team leaves for lunch.

1145 E.P., M.R. and J.A. depart site for lunch.

1215 Return to site from lunch. SGS team continues on Site # 1. Driller rep. came to base during lunch. Will have to meet with him again.

1250 Talked to Lisa about meeting w/ Lab representative and to Lawrence M. on payment for drums.

1310 J.A. departs site to obtain Zero-Air for the field GC.

1330 SGS Team completes Site No. 1. (Minus # 23 and # 29) Moves back to Site No. 3 to sample new point # 10 and # 11.

1410 Complete two SGS points at Site 3.

1420 Begin SGS work at Site No. 2. Beginning on East end, moving west.

1510 E.P. departs site to go to Bank to obtain cash for payment to drum merchant.

1540 E.P. returns to site. J.A. back with Zero-Air. Move to measure SGS points on Site No. 1.

1600 SGS Team finishes sampling for the day. Beginning to compile analytical results from the days activity.
Completed 24 SGS points today.

1630 SGS Team delivers daily data And departs the site. Completed 5 out of the 14 SGS points on the IRP Site # 2.

1635 E.P., J.A. and M.R. depart site.

1700 E.P. calculates PPM values for SGS points completed for the day

1855 E.P. finishes work for the day.

9/14/93 10 hrs

DAY 6 WEDNESDAY 15 SEPT 93

0730 E.P., M.R. and J.A Arrive At the Site.
WEATHER : Sunny And Warm,
Breezy, winds from E.
Hi: Mid 80's

SGS Team continues SGS on Site 2.

0810 E.P., J.A. and MR stake out initial locations of BH, MW, and PZ At Site No. 1 And 3.

0845 Take another W.L. in the Test hole near the fuel pumps.

19.53 Below Casing
+ .20
19.73 BLS

0910 EP and JA depart Base to pick up Methanol from the Lab.

0935 Return to Base.

1010 E.P. And J.A & MR begin to measure borings And SGS points At Site No. 2

1110 Measured in boring locations at Site No. 1.

1115 SGS Team completed analysis samples at IRP Site No. 2. 11 Points surveyed today.

1145 SGS Team delivers final analytical results for Site No. 2. Begins to pack up equipment.

1200 SGS TEAM DEPARTS SITE. MISSION COMPLETED.

1215 JA. and MR. depart site for Lunch

1245 J.A. and M.R. return from Lunch. EP completes conversion of SGS data from IRP SITE No. 2. Completes site diagram and finalizes locations of BH at Site No. 2.

1400 Drum man delivers 35 55-Gallon DOT drums.

1410 M.R. departs site for Hotel to obtain HRS information.

1415 Vince Nantista and Ken from Soil Mechanics arrive at Base. Go through walk through of sites and ALL BH, MW, and PZ locations. + Discuss drilling procedures, decon site, well construction, other aspects of the drilling operation.

1500 Soil Mechanics departs site. EP and J.A. go to Civil Engineering to coordinate w/ CPT Johnson on drilling program to begin tomorrow.

1530 E.P. and J.A. depart site

1700 Conclude work on SGS analysis and BH, MW diagrams

Earl E Parks 9/15/93 10 hrs

DAY 7 THURSDAY 9/16/93

0815 E.P. And M.R. Arrive At Base. J.A. is refueling van and obtaining di-water. Go to civil engineering to FAX time-sheets to S.A.

Walk Piezometer sites. Verify for utilities.

WEATHER
Frontal passage Cloudy And Rain all day. Breezy, winds out of the ~~E~~ West.
Hi - mid 70's

0990 SAFETY BRIEFING
Drillers Arrive on Site, Orientation
Earl Parker
Jerry Arriaga } OPTECH
Myrna Rodriquez
Robert Rogers
David Vernick } Soil Mechanics
Brett Boerner

Discuss Site And Contaminant History.

Environmental Hazards, Overhead power, underground utility.
Emergency procedures to include Ambulance And Route to Hospital.
Talk About SI Sequence and daily objective.

1000 Drillers set up over PZ 01, set up decon Area And prepare for drilling. Using CME 75 Drill Rig HSA.

J.A. Sets up field GC for Analysis during Piezometer drilling.

1100 BEGIN drilling At Piezometer (PZ) 1.
0'-5' BLS Sand, Silt, gravel. Slightly damp. Brown. Rolls to a loose ball.
5'-10' BLS - Same -
10'-15' BLS - Same -
15'-20' BLS At ~17' BLS becoming very silty. No gravel. Balls into firm cohesive mass.
20'-25' BLS Silty with large gravel. Well rounded gravel. Sand And silt Becoming more Sandy toward the bottom.

25'-30' BLS - Becomming more Sandy with fewer and smaller well rounded gravel particles. Brown. Coarse sand. Moist.

30'-35' - SAME -

35'-40' Sandy, Silty, becomming slightly more silty. Gravel, to marble size.

1130 At 40' BLS, No water yet. Drilling with 2.25' size Auger.

1145 Drillers break for Lunch and must obtain A part for steam cleaner.

1200 J.A. And M.R. go to Lunch.
BTEX standard supplied by Tracer is not good. Seems like pure water. Shot clean in the GC. Must try to obtain another BTEX standard.

1300 BEGIN drilling again. Drillers returned At 1240.

40'-45' BLS Sand, Silt, with increasing large gravel, small cobbles. Well rounded marble and larger sized grains.

45'-50' Particle size becomming smaller. Sand, silt, gravel. Well rounded some large particles. Mostly pea sized grains.

50'-55' - Same -

55'-60' Brown, Sand, Silt, Gravel, more of the same.

60'-65' Becomming more gravely. Cobble sized particles, well rounded.

65'-70' Continue in gravel. No recovery on the surface.

70'-75' Beginning to get gravel/cobble return at the surface. Well rounded to subangular cobble up to 2" in diameter.

1330 At 75' bls. No water yet. Stopped drilling to clean out the hole.

1400 Begin drilling again at 75'

75'-80' recovery consist of very coarse sand and gravel. Descriptions of each 5' interval based on recovery at the surface is no longer very reliable. Will not ~~anyhow~~ to describe in this manner.

80'-85'

85-90'

1430 Reach 90' BLS. Rods show dry hole. Used water probe in HSA and confirmed the bottom is dry. Drilling is concluded for the day. Crew begins to clean hole to leave augers in overnight.

1500 Drillers depart site

E.P. MR and JA break down GC. depart site.

1800 J.A. and E.P. order a BTEX standard to be delivered to Hotel by FED EX tomorrow

2115 Contact John Morris in Washington. Relay information on Soil Gas Survey preliminary results. BTEX standard situation from Tracer Research, and the groundwater situation at the Base.

Decided to inform Bill Nealon from the Air National Guard Readiness Center (ANGRC) and let him make the decision as how to proceed with the groundwater investigation.

Soil Sampling will tentatively begin on Monday and should proceed quickly.

Earl E Parker 9/16/93 7 hours

DAY 8 FRIDAY 17 SEPT 93

0700 E.P., M.R. JA Arrive At the Site.

WEATHER: Raining Heavy At some Intervals. Temp lower 60s. Forcast is for Cloudy skys with intermittent showers All day. Hi's in the lower 70s.

0730 Drillers Arrive. Discussion of groundwater situation results in A tentative decision to stop drilling on PZ 1. The lab is not ready to begin soil sampling today so we will do no drilling.

0805 E.P. decides to continue drilling on PZ 1 As deep As feasible to Attempt to locate water in the well. Departs drilling location to phone Bill Nealon and obtain nearby water level information.

0900 Phoned Ken Fischgrum at the

Nassau County Public Works dept. to obtain recent W.L. information on observation well N-11964 completed in the upper glacial Aquifer. Information obtained indicated A Water Level was taken on Sept 8, 1993:

Water = 56.26' Above MSL

Since our site is 3,500 feet east of the well at An elevation of 200' Above MSL, water was likely to occur at 144' below land surface at the site.

Cpt Johnson was suprised by this information, stating that test borings for the dry wells constructed near the site indicated water to occur ~ 50' below land surface. He probably encountered A pearched water table.

0910 Phone call to Bill Nealon At ANGRC was not in. Left A brief message.

0915 Called Nytest Lab to change sampling plan to begin on Monday. Doug and Joe are out. Nytest will assign a rep and he will call back.

0920 Called Bill Nealon, Left my phone number to hotel on his service.

0925 Phoned Vince Nantista w/ Soil Mechanics to update him on the job. Informed him we will be soil sampling on Monday and Tuesday (9-20/21-93).

1015 Received call from Tom Petrella of NyTest. Will meet with him at 11:00 AM to discuss sampling program starting Monday.

1030 Developed sampling program for Monday. Will sample from Site No. 3 first. Then Site No. 1 and 2 on Tuesday. Groundwater program will

be carried out last and will await decision by ANGRC Project Manager.

1100 Met with J.A. and M.R., went to Nytest and met with Tom Petrella. The decisions are as follows.

Sampling Program
- Soil -

Monday, 20 Sept.
Soil Samples from IRP Site No. 3
6 borings x 3 intervals = 18 samples
will obtain : 2 Equipment Blanks
2 Field Blanks
2 Field Duplicates
1 MS/MSD

Total of 25 samples

Tuesday, 21 Sept
Soil Samples from IRP Sites No. 1 and 2.
Site 1 4 borings x 3 intervals = 12 samples
Site 2 3 borings x 3 intervals = 9 samples
5 borings x 2 intervals = 10 samples
Soil Samples = 31 samples

will obtain:

- 4 EQUIPMENT BLANKS
- 4 FIELD BLANKS
- 4 FIELD DUPLICATES
- 2 MS/MSD

Total of 45 samples.

Further sampling will be developed after consultation with ANGRC.

1215 Lunch

1300 Back at hotel.

- Develop sampling details and set aside labels and Chain-of-Custody forms for monday. Develop sleeve count for decon party.

1600 PHONED ANGRC for BILL NEALON. He is not at his desk.

1700 PHONED JOHN MORRIS. DISCUSSED options for drilling program.

Decided to drill the boreholes And continue with soil sampling. He (J.M) will contact Bill Nealon And discuss the groundwater program.

- Continued to work on sampling packages for Soil Sampling program to begin on Monday (9-20).

9-17-93 9 hrs

DAY 9 SATURDAY 18 Sept 93

* Worked in Hotel on the SAmple pAckages for Soil Sampling. Mon (9-20)

Wrote out Lables, cut teflon tape squares, Aluminum Foil squares And lAbled Zip-Lock BAgs.

Determined when QA/QC samples would integrate into sampling program

Earl [illegible] 9-18-93 4 hrs

DAY 10 SUNDAY 19 Sept 93

* Continued to create the sample pAckages by working on TUESDAY (9-21) sampling.

Wrote out lables, cut teflon tape And Aluminum foil squares And lAbled Zip-Lock bags for TUE sampling.

Determined when QA/QC samples would integrate Into sampling program.

Earl [illegible] 9-19-93 4 hrs

DAY 11 MONDAY 20 Sept 93

0700 MR and EP Arrive at Site. Set up decon AREA At IRP Site No 3

0705 Drillers Arrive, begin prep for drilling at Site No. 3

0720 J.A. Arrives from Lab with ICE CHEST and Containers. Returns to Hotel for Isobutelene for PID.

0810 SAFETY BRIEFING
Earl Parker, Myrna Rodriquez, Jerry Arriaga } OPTECH
Robert Rodgers, Mark Stimpfle, Steven Mitchell } Soil Mechanics

Review All safety aspects for two new field members from Soil Mechanics. Signed Compliance Agreement
WEATHER: CLEAR And cool. Sunny and breezy Hi: Low 70's

0820 BEGIN Drilling At 03-001 BH
SPT Hammer - 140 lbs, 30" drop } Auto Hammer

0825 BEGIN Driving Sample 03-001 BH #1

03-001 BH #1

Interval 2" - 1.7" BLS

SPT BLOWS
16 0'-.5"
24 .5'-1.0'
16 1.0'-1.5'

Headspace = 9.5 PPM
Opening Spoon = 1.2 PPM
- Very dry and hard fill material Sandy, Gravels, Silty.

Interval 5' - 6.5' BLS

STP BLOWS
3 - ~~10.0' 10.5'~~ 5.0'-5.5'
3 - ~~10.5' 11.0'~~ 5.5'-6.0'
4 - ~~11.0' 11.5'~~ 6.0'-6.5'

Spoon Open = 1.3 PPM
Headspace = 4.1 PPM

- Soft, moist, sandy silt. No gravel. Brown. Mostly silt.

Interval 10.0' - 11.5' BLS

SPT 10 : 10.0' : 10.5'
15 10.5' - 11.0'
15 11.0' - 11.5'

Spoon Open : 1.6 PPM
Headspace : 2.4 PPM

Sand. Lighter brown fine silty sand. Some coarse sand grains but not common. Mostly fine to very fine sand w/ some silt.

0900 Move to 03-004 BH

03-004 BH
Interval 0' - 1.5' BLS
STP 14 0.0' : 0.5'
14 0.5' - 1.0'
10 1.0' - 1.5'
Spoon Open : 24.6 PPM
Headspace : 42.6 PPM

Slight Odor in spoon

Dark brown, moist, unsorted fill. Large gravel, sand, and silt.

Interval 5.0' - 6.5'
STP 5 - ~~5.0'~~ 5.0' - ~~5.5~~ 5.5'
4 - 5.5' - 6.0'
3 - ~~6.0'~~ 6.0 - 6.5'
Spoon Open : 6.4 PPM
Headspace : 10.7 PPM
Gravely, silty, sand, poorly sorted fill material. dark brown, dry. Mostly a medium to fine sand with silt and gravel.
Interval 10.0 - 11.5
STP 18 - 10.0' - 10.5'
25 - 10.5' - ~~10.5'~~ 11.0'
27 - 11.0' - 11.5'
Spoon Open : 4.2 PPM
Headspace : 11.1 PPM
Very poorly sorted sand. Silty sand, with large, well rounded gravel and cobble sized grains.
Mostly medium to fine sand with little silt. well rounded gravel and small cobbles.

Interval 10.0-11.5' FIELD DUPLICATE
(Actual) 11.0'-12.5' BLS
Pushed below the 10.0-11.5' Interval
to obtain duplicate sample
STP
14 - 10.0'-10.5'
15 - 10.5' - 11.0'
12 - 11.0' - 11.5'
Spoon Open : 3.6 PPM
Headspace : 21.6 PPM
Very poorly sorted sand. Mostly a fine to medium grained sand with little silt. Contains fewer well rounded gravel and cobbles.

0945 Complete 03-004 BH
Move to 03-002 BH

1010 BEGIN
03-002 BH
Interval 0.0'-1.5' BLS
STP 15 - 0.0' - 0.5'
9 - 0.5' - 1.0'
15 - 1.0' - 1.5'
Spoon Open : 0.4 PPM
Headspace : 5.3 PPM

Dark brown, dry, very poorly sorted sandy and gravel fill material.

Interval : 5.0'-6.5' BLS
STP 3 5.0-5.5
5 5.5-6.0
4 6.0-6.5
Open Spoon : 0.4 PPM
Headspace 5.1 PPM
dark brown, very poorly sorted silty sand. Medium to fine grained sand w/ silt and well rounded to rounded gravel particles abundant.
Interval : 10.0'-11.5' BLS
STP 16 10.0-10.5
19 10.5-11.0
15 11.0-11.5
Open Spoon : 0.3 PPM
Headspace : 3.1 PPM
brown, poorly sorted medium to fine grained silty sand with well rounded medium to small gravel abundant. Not much silt. Mostly poorly sorted sand.
1035 Complete Borehole 03-002 BH
Move to 03-006 BH

1045 Begin at 03-006 BH

03-006 BH
Interval 0.0' - 1.5' BLS
SPT

11	0.0 - 0.5
9	0.5 - 1.0
8	1.0 - 1.5

Open Spoon 6.7
Headspace : 50.5

Very poorly sorted, dark, sandy fill material with large to medium sized pebbles. Small cobbles present. Much fine sand and silt. No odor present.

Interval 5.0' - 6.5' BLS
SPT

3	5.0 - 5.5
3	5.5 - 6.0
3	6.0 - 6.5

Open Spoon 1.3
Headspace 6.3

Very poorly sorted, brown sand with abundant medium, well rounded gravel. Silty with fine sand. Mostly medium sand and small well rounded gravel.

Interval 10.0' - 11.5' BLS
STP

22	10.0 - 10.5
29	10.5 - 11.0'
27	11.0 - 11.5'

Open Spoon : 2.7 PPM
Headspace : 3.4 PPM

Light brown fine to medium sand with very little silt. Abundant small to medium sized, well rounded gravel. Very few large gravel and small cobble grains. Very poorly sorted sand and gravel.

1125 Finished drilling on 03-006 BH
Drillers break down and go to lunch. E.P. J.A take Equip Blank and Field Blank # 1.

1215 Drillers return from Lunch.
Begin to grout holes and sweep site. Begin to prepare for Borehole 03-003 BH

1235 Phone John Morris in San Antonio. Confirmed to end the drilling program

Following the conclusion of
soil borings on TUESDAY.
Will not drill BG borings or
the deep borings at each site.

1300 Prepare to Sample 03-003 BH

1315 BEGIN Drilling At 03-003BH
Interval 0.0' - 1.5'
SPT 8 0.0 - 0.5
9 0.5 - 1.0
9 1.0 - 1.5
Spoon Open : 4.2 PPM
Headspace : 6.3 PPM
Very poorly sorted, dark brown fill material. Sandy with silt and abundant gravel and small cobbles. Dry, mostly a medium to fine grain sand w/ gravel.

Interval 5.0' - 6.5' BLS
SPT 7 5.0 - 5.5
3 5.5 - 6.0
3 6.0 - 6.5
No RECOVERY. Piece of Wood obstructed sampler.
Will move 1' North and re-drill

And sample at 5.0'

Interval 10.0' - 11.5' BLS
SPT 17 10.0 - 10.5
28 10.5 - 11.0
29 11.0 - 11.5'
Open Spoon : 5.9 PPM
Headspace : 6.8 PPM

Interval 11.5 - 13.0' BLS
FIELD Duplicate
MS/MSD Sample
SPT 27 - 11.5 - 12.0
27 12.0 - 12.5
26 12.5 - 13.0
Open Spoon : 4.8 PPM
No headspace or Field GC Sample.

Fine to medium grain sand with some but little silt. Abundant well rounded to rounded gravel. Small to large gravel and small cobble sized particles. Very poorly sorted sand. Light Brown. Dry.

Interval 5.0'-6.5'
SPT 3 - 5.0'-5.5'
5 5.5'-6.0'
4 6.0'-6.5'
Open Spoon 2.9 PPM
Headspace 5.7 PPM

Very dark, organic rich silty sand. Well rounded gravel with abundant wood fragments. Leaf and wood fragment abundant. Large gravel and abundant small, well-rounded gravel. Mostly a fine grained silty sand matrix. High silt content. Dry.

1415 Conclude drilling at IRP Site No. 3 by finishing 03-003 BH. Will not drill deep boring (03-005 BH) at this time. Drillers begin to clean up site. Grout holes.

1440 Drillers depart Site

E.P. M.R. take Equip Blank and Field Blank # 2.

1500 Begin to work on Chain-of-Custody documentation and Site Clean-up.

1630 Pack up and depart Site for LAB. E.P. and J.A. go to LAB to turn in samples. M.R. departs for Hotel to write letters for HRS information.

1640 E.P. and J.A. Arrive at LAB and Turn in Samples. Inform Doug Sheeley and Joe Dockery that Soil Samples will have a hold. They will not Analyze until given the notice to proceed by ORTECH.

1700 E.P. and J.A. turn over samples to NY TEST, obtain our copies of the Chain-of-Custody and depart LAB.

2000 E.P. works on finalizing Sampling packages for TUE (9-21). Speak w/ John Morris. will not hand-Auger at this time.

Go up w/ J.A. to see how the GC analysis is going.

2130 End for the day.

Earl E. Parkett 9-20-93 12 hrs

DAY 12 TUESDAY 21 Sept 1993

0700 E.P. and M.R. Arrive at Site.

0703 Drillers Arrive at site. Begin to prepare for drilling. J.A. Arrives from LAB w/ sample containers.

0705 Raining. Setting up tarp to set up decon area and work stations. Raining, cool, Hi's - lower 60's. Will not start drilling till rain stops.

0910 BEGIN at 01-004 BH. Rain stops. Tailgate safety update with all personnel. New drilling member signs Safety Compliance.

Borehole 01-004 BH
Interval 0.0' - 1.5' BLS
15 - 0.0' - 0.5'
28 - 0.5 - 1.0'
20 - 1.0' - 1.5'

Black fill. Appears to contain abundant coal or charcoal. Very poorly sorted medium to fine sandy coal particles. Many large particles of charcoal. Very poor recovery. Will resample.

Interval 0.0 - 1.5' BLS
SPT - 11 - 0.0 - 0.5
28 - 0.5 - 1.0
29 - 1.0 - 1.5
Open Spoon 6.8 PPM
Headspace 3.5 PPM
Continues to be black with abundant charcoal or coal fill material. No odor. Dry, very poorly sorted material. Mostly very fine grained. non-cohesive coal sand with abundant large particles.

Interval 5.0' - 6.5' BLS
SPT - 1 - 5.0 - 5.5
3 - 5.5 - 6.0
5 - 6.0 - 6.5
Open Spoon - 7.9 PPM
Headspace - Not obtained (No sample for GC)
Minimal Recovery. One good brass sleeve.
- Dark, organic rich sand and fill material w/ abundant wood and wood chips. few large coal particles.

Interval 10.0' - 11.5' BLS
SPT 16 - 10.0 - 10.5
30 - 10.5 - 11.0
40 - 11.0 - 11.5
Open Spoon : 9.0 PPM
Headspace : 10.3 PPM
Very poorly sorted sandy silt. Mostly consolidated silt nodules with fine sand. Contains gravel and well rounded small cobble particles. Some medium sand and small gravel. Very poorly sorted.

1045 HRS Complete work on 01-004 BH
Move to 01-003 BH

1100 BEGIN Drilling 01-003 BH
Interval 0.0 - 1.5' BLS
19 - 0.0 - 0.5
20 - 0.5 - 1.0
15 - 1.0 - 1.5
Open Spoon - 8.5 PPM
Headspace - 7.5 PPM
Very poorly sorted, dark brown fill.

Medium to fine grain sand with abundant, well rounded gravel and small cobble particles. No coal or charcoal particles present. No odor. Dry.

Interval 5.0' - 6.5' BLS
STP 1 - 5.0 - 5.5
1 - 5.5 - 6.0
1 - 6.0 - 6.5

No recovery - mostly wood chips pushing next interval. Organic, Sand.

Interval 6.5 - 8.0 BLS
STP Push - 6.5 - 7.0
Push - 7.0 - 7.5
2 - 7.5 - 8.0

Open Spoon : 15.5 PPM
Headspace 3.5 PPM

Wet, well cohesive silty clay with few coarse sand, small gravel particles. Mostly silty clay. Cohesive and wet.

Interval 10.0' - 11.5' BLS
12 - 10.0 - 10.5
15 - 10.5 - 11.0
17 - 11.0 - 11.5

Open Spoon 5.3 PPM
Headspace 3.2 PPM

Brown, dry, sandy silt. Mostly silt with fine to coarse sand grains and a few gravel particles.

Interval - 10.0 - 11.5' BLS
(Actual 11.5 - 13.0)
Field Duplicate / MS/MSD

Same material as previous sample.
PID : Open Spoon 4.8 PPM

1050 HRS Complete work at 01-003 BH
Moving to 01-001 BH

1100 BEGIN drilling at 01-001 BH
Interval 0.0' - 1.5' BLS
STP 7 - 0.0 - 0.5
15 - 0.5 - 1.0
21 - 1.0 - 1.5

Open Spoon 2.1 PPM
Headspace 1.5 PPM

Dry, very poorly sorted silty sand. Mostly fine to medium sand silt and abundant medium to coarse gravel. Very angular gravel. Appears to be fill material. No odor, dry.

Interval 5.0 - 6.5 BLS

~~SPT~~ SPT 22 - 5.0 - 5.5
34 - 5.5 - 6.0
33 - 6.0 - 6.5

Open Spoon : 0.0 PPM
Headspace : 0.5 PPM

Very poorly sorted coarse to medium silty sand. Mostly sand w/ silt and many small to large well rounded gravel. Some small cobbles present. Dry, no odor.

Interval 10.0 - 11.5 BLS

SPT 9 - 10.0 - 10.5
15 - 10.5 - 11.0
37 - 11.0 - 11.5

Open spoon 7.3 ppm
Headspace 6.8 ppm

[illegible]

1130 hrs Complete 01-001 BH
Finished sampling at IRP Site 1.
Drillers moving to IRP Site 2.
Set up on 02-001 BH

1135 EQUIPMENT BLANK #3
FIELD Blank # 3

1200 BEGIN drilling at 02-001 BH
Interval 0.0 - 1.5' BLS

SPT 5 - 0.0 - 0.5
6 0.5 - 1.0
6 1.0 - 1.5

Open Spoon 0.0 PPM
Headspace 0.0 PPM

Very dark brown to black, very poorly sorted sand. Contains some silt, medium sand to small, well rounded gravel. Dry.

Interval 5.0 - 6.5' BLS

SPT 18 - 5.0 - 5.5
28 - 5.5 - 6.0
24 - 6.0 - 6.5

Open Spoon : 0.0 PPM

[illegible]

Light brown, very poorly sorted sand. Silty with abundant well-rounded gravel. Mostly a poorly sorted silty sand with gravel and small cobbles. Dry, No odor.

Interval 10.0 - 11.5 BLS
SPT 82 - 10.0 - 10.5
96 - 10.5 - 11.0
22 - 11.0 - 11.5

No Recovery Will push next interval. Very gravelly. Big rocks in sleeves.

Interval 11.5' - 13.0' BLS
SPT 24 - 11.5 - 12.0
22 - 12.0 - 12.5
20 - 12.5 - 13.0

Open Spoon : 0.0 PPM
Headspace : 0.0 PPM

Light to medium brown, Very poorly sorted sand. Silt, both medium and coarse sand with well rounded to very angular gravel and cobble.

1250 Finish at 02-001 BH. Moving to 02-00~~2~~3 BH.
B2 EP

1310 Phoned John Morris. Informed us to proceed with hand augering and analytical work. The drillers will be released after this boring is finished but will be returning on Thursday. We will communicate later concerning the continued drilling program.

1320 Begin Drilling at 02-00~~2~~3 BH ZEP
Interval #1 0.0 - 1.5 BLS
SPT 4 - 0.0' - 0.5'
5 - 0.5' - 1.0'
5 - 1.0' - 1.5'

Open Spoon : 134 PPM
Headspace : 813 PPM

Odor - petroleum odor at hole and when spoon opens.

Dark brown to black very poorly sorted sand. Some silt, mostly coarse to medium sand with well rounded gravel.

1325 - Beginning to Drizzle again.

Interval 5.0'-6.5' BLS

SPT 13 - 5.0'-5.5

14 - 5.5'-6.0'

13 - 6.0'-6.5'

Open Spoon : 0.0 PPM

Headspace : 0.0 PPM

Poorly sorted silty sand. Mostly a fine to medium sand w/ alot of silt. fewer gravel particles. Dry. no large particles. Minimum recovery.

Interval 10.0' - 11.5' BLS

SPT 19 - 10.0'-10.5'

19 - 10.5'-11.0'

16 - 11.0'-11.5'

Open Spoon : 0.0 PPM

Headspace : 0.0 PPM

Brown to light brown poorly sorted sand. Silt with fine to medium sand. Contains well rounded small to large gravel particles. Slightly moist. No odor.

Interval 11.5-13.0 Field Duplicate

Open Spoon : 0.0 PPM

Headspace : 0.0 PPM

Pushed from last interval. Lithology is identical. Very poorly sorted sand, silt, and gravel. Mostly sand. Moist. Good recovery. Drizzle stops again. Decon spoon to obtain equipment blank. Finished at 02-003 BH.

1340 Complete drilling. Precipitation begins again. Drillers break down rig.

1350 Drillers depart site.

Begin to breakdown decon area.

1400 Obtain Equipment Blank # 4.

Field Blank # 4.

1415 Prepare samples for Lab Turn-in. Chain-of-Custody Forms and Seal ice Chests

1435 Begin to break down working area. mist is beginning
[illegible]

1430 BEGIN final clean-up.

1500 E.P., M.R. and J.A. depart site for Lab

1550 Depart Lab for Hotel

2000 Work on Sample lables for Hand Augor sites. Help J.A. on field GC. Phoned John Morris and discussed investigation status.

2200 Done for the day.

[illegible] 9/21/93 11 hours

DAY 13 Wednesday Sept 22 93

0800 E.P. Arrives at the Site.
J.A. is at hotel running samples in the field GC.
M.R is at the library looking up HRS information.

WEATHER : Cloudy, foggy. Temp : 59°
Cloudy to partly cloudy with chance of light showers Hi - 70's.

0810 Crew from soil mechanics Arrives at the site to grout holes and move drums.

0840 BEGIN DRUM Inventory.
IRP SITE No. 1, 2, 3.

Drum	Soil Cuttings	02-001 BH
		02 002 BH
2	Soil Cuttings	01-001 BH
3	Soil Cuttings	01-003 BH
		01-004 BH

(4)	Soil Cuttings	03-003 BH
(5)	Soil Cuttings	03-006 BH
		03-002 BH
(6)	Soil Cuttings	03-001 BH
		03-004 BH
(7)	Soil Cuttings	PZ-01
(8)	Soil Cuttings	PZ-01
(9)	Soil Cuttings	PZ-01
(10)	Waste Water	Decon Station
(11)	Waste Water	Decon Station
(12)	Waste Water	Decon Station

20 Empty drums in Drum Storage Area.

(1) Water Transport Drum drillers use
(1) Drum on Drillers Truck
(1) Grout Drum

35 Total

1000 Drill crew begins moving drums to storage Area

1035 M.R. Arrives at site w/ HRS info. We need to get a disk to put population information on. Goes to Civil Engineering to FAX info to San Antonio office.

1050 M.R. obtained disk for Civil Engineering. Departs site for hotel. Will pick up J.A. and return.

1115 Drill Crew completes moving drums. Checks out and departs site.

1130 E.P. departs site for lunch. Meet J.A. and M.R.

1245 Return to base. Preparing to obtain Hand Auger borings.

1330 Set up decon station And prepare to collect Equipment Blank prior to sampling.

1350 EQUIPMENT BLANK #5
FIELD BLANK #5

1935 Missing soil sample containers. Turn-in by mistake yesterday. M.R. departs for LAb to obtain more containers.

1540 Begin to obtain soil sample At 02-006 BH.
02-006 BH 0.0'-0.5' BLS. Very poorly sorted silty sand with abundant, well-rounded gravel. PID - 0.0 PPM

1615 Hit A hard gravel layer At 3.5' BLS. Cannot penetrate with hand auger. Attempting to pound through it with steel probe.

1700 Abandon hole for the day. E.P. M.R. and J.A depart site for the day

(8 hrs)

DAY 14 THURSDAY Sept 23, 93

0800 E.P. to stay At Hotel to obtain estimates for well construction for the groundwater investigation.

J.A. And M.R. go to site to begin obtaining hand Augers.

0810 Phone to Sean Walters, Env. Coord at Suffolk ANGB. Give him update on investigation and ask about GW well installation. Suggested to talk to NYSDEC personnel on well installation.

0830 Phone to John Swartwout at NYSDEC. refered me to Dan Eaton - NYSDEC Geologist. He said we could use Wet Rotary with Bentonite Mud, or Cable Tool rig technique only. Cannot use percussion rig. Will pass this information to driller.

0900 Phoned drillers for estimates on drilling 3 Piezometers, 4 Monitoring wells.
Soil Mechanics - Vince Nautista
R&C Drilling - Lou Zackman
Aqua-Tech Drilling - Ron Smales

0930 Arrive at Site. J.A. And M.R working on Hand Augers.
Moved off of 02-006 BH.
Completed 02-007 BH Intervals 1 And 2. ~~Int 1 [illegible] 0.0 PPM~~ ~~Int 2 [illegible] PPM~~
02-006 BH 0.0-0.5' BCS - Obtained 5.5 PPM
02-007 BH 0.0'-0.5 BLS - 1.2 PPM
Black, charcoal fill. very unsorted.
02-007 BH 5.0'-5.5' BLS - 6.5 PPM
- Moist, brown silty sand. Poorly sorted.

0950 BEGIN 02-005 BH.
Digging into hard gravel interval At 3' BLS. Moving on. Will return.
02-005 BH - 0.0'-0.5' BLS 1.8 PPM
Dark brown to black poorly sorted silty sand with charcoal fill fragments.

1035 BEGIN on 02-004 BH.
02-004 BH 0.0'-0.5' BLS 40.8 PPM - Odor
Dark brown very poorly sorted sand. Silty sand with angular gravel.
Complete 02-004 BH Interval 2 5.0-5.5' BLS - 251 PPM
Moist, very poorly sorted sandy silt. Odor.

1120 More back to 02-006 BH with post-hole digger to enlarge hole to get around large rock.
02-006 BH [illegible] 0.0-0.5' BLS [illegible] 5.5 [illegible]

we Are Able to bypass rock and drill down to our target interval.
02-006 BH 5.0-5.5' BLS 2.3 PPM
Dark brown, very poorly sorted silty sand w/ Abundant well-sorted gravel. No odor.

1350 Complete 02-006 BH 2nd Interval.

1415 Move back to 02-005 BH And post-hole to 3' to Attempt to penetrate gravel interval

1435 BEGIN on 02-008 BH.
02-008 BH 0.0'-0.5' BLS 20 PPM
Dark brown to black Very poorly sorted silty sand with charcoal fill particles.
02-008 BH 5.0'-5.5' BLS 98 PPM
Dark brown to black, Very poorly sorted silty sand with few gravel. No charcoal fill.

1550 Abandon present hole at 02-005 BH cannot penetrate gravel interval.
Moving 1.5' north and east.

1610. Penetrate to 5.0' much easier.
02-005 BH - 5.0'-5.5' BLS 457 PPM
Strong odor. Dark brown, Very Moist and cohesive sandy-silt with clay. Some small ~~fe~~ pebbles.

1635 Prepare to obtain Equipment Blank.

1650 Obtain EQUIPMENT BLANK #6
FIELD BLANK #6

1715 Prepare Chain-of-Custody for samples. Begin site clean-up

1745 Depart Site for CAB.

1810 Depart CAB. E.P. J.A. And M.R. go to Hotel.

2115 Phone w/ John Morris. Will close down at Roslyn and prepare to move to Worcester if plans unfold with Washington.

Carl Etcheit 9/23/93 9.5 hrs

DAY 15 FRIDAY SEPT 24, 93

0800 E.P. remains at Hotel to contact Surveyor and Drillers for cost estimate. J.A. and M.R. depart for site to watch Grout team from Soil Mechanics grout Hand Augers.

0815 Contact Surveyor (Mr. Pratap Narsh). He is not in the office. Left a message.

0830 Contact Edward Palma and Jeff at Big Apple Drilling for cost proposal on drilling work.

0900 E.P. Arrives at Site. Grout team is finished and J.A. and M.R. have packet and inventoried the supplies. At present, they are re-staking all the points for the surveyor. E.P. goes to Hardware store for nails and paint.

0945. Continue to re-stake points.

1100 Staking out points at IRP Site No. #3.

1130 Complete Site clean-up and restaking All points. Going to Civil Engineering to talk to Cpt. Johnson.

Not in - out to lunch.

1145 E.P. M.R. and J.A. depart site for lunch.

1230 Return to base after lunch. Return to Civil Engineering. Cpt Johnson is out of the office for the afternoon.

Talked to maintenance coordinator. Mr. Al Arens. We will store the big box in their warehouse when we go to Worcester.

Will return to base (Monday) morning to give Cpt Johnson a final briefing and fax information to John Morris in San Antonio.

1240 Depart Site for Hotel.
M.R. goes to library for HRS information.

E.P. in room compiling information.
J.A. is compiling GC information and finishing ~~bad~~ hand auger GC shots.

1530 Received phone call from Surveyor (Mr. Narsu) Will meet with him at 8:30 Am Monday morning to walk the Sites.

1630 Working on Maps to fax to John Morris on Monday. Compiling Soil Gas info and PID info.

1800 Compiling GC info on maps.

1930 Finished working on Site related information.

[redacted] 9/[redacted]/93 (10.5 hrs)

DAY 16 SATURDAY 25 Sept 93

- No JOB RELATED ACTIVITY -

25 Sept 93 0 hrs

DAY 17 SUNDAY 26 SEPT 93

1300 to 2200	Finish Soil descriptions, Compiling information for Site Closeout.

DAY 18 MONDAY 27 SEPT 93

0800 Check out of Hotel. Go to base to FAX info to San Antonio And meet with Surveyor (Mr. NARSA).

0830 Mr. NARSA Arrives At site. Make copies of Sites for him, then walk the three sites to identify All points to be located

0910 Complete walking the site. Fill in soil on grouted hand Auger locations And secure our cones

0920 Go to Civil Engineering And FAX maps to John Morris

Call Lab - Speak w/ Doug Sheeley And inform him of the end of Phase I investigation.

Call Driller - Leave message for Vince that we are ending phase I investigation. Will call him when we are ready to schedule the next work.

0930 Phone John Morris in San Antonio. He wants us to wait until A last-minute hitch is solved in Worcester before we drive there. Will call him back at 1300.

0945 Go to Roslyn Library to work on Worcester Sampling And Drilling Plan And to work on GC info And for M.R. And J.A. to review Worcester Work Plan.

1100 Phoned John Morris. Problem in Worcester will not be worked out quickly enough for us to go. Will Check back in to Hotel. Will see if situation in Worcester will be worked out for tomorrow.

1300 Review data and compile info from Roslyn Field work. Begin to pack up info.

M.R. and J.A. return to Site to inventory and pack supplies to await future work.

Earl Erhardt 4/27/93 3 hrs

DAY 19 TUESDAY 28 SEPT 93

0830 Speak w/ John Morris. Will depart Roslyn ANGS today. Will need to make a Scope change to complete work at Roslyn.

J.A and M.R. go to Rosly ANGS to seal and Store Equipment until we return.

1000 Go to Station to Brief Cpt Johnson on situation and insure supplies are stored ok.

1100 Depart Roslyn, New York for Airport. Turn in Vehicles and proceed to Airport.

2230 Arrive in S.A. - Roslyn Phase I over.

Earl Erhardt 9/28/93

SUN	MON	TUE	WED	THU	FRI	SAT
3 ~	4 ~	5 TRAVEL TO NEW YORK	6 Report to State; Inventory equipment; Check drilling locations.	7 Drilling Soil Samples 01-002 BH 02-003 BH 03-005 BH BG-001 BH	8 Compile analytical data; Locate Piezometers; Locate drill loc.; Meet Big Apple Drillers	9 No Job related Activities
10 No Job related Activities	11 Survey PZ locations. Equip check; Visual Decon; Utility check and drill loc approval.	12 Prepare for drilling; Worked w/ ANGS work	13 Drillers Arrived; Deposit supplies; Begin PZ-1 (to 70' BLS)	14 Drill PZ 1 3 attempts. PZa - 65' BLS; PZb - 65' BLS; PZc - 85' BLS	15 Recon figure for O-DEX drilling; -Organize and Obtain Equip	16 No Activity
17 No Activity	18 Continue Prep for O-DEX drill. Meet w/ Jeff from BIG APPLE	19 Drill PZ-1 0'-55' BLS	20 Drill PZ-1 55'-100'	21 Drill PZ-1 to 160'	22 Complete at PZ-1; clean site; Move equip to PZ-2	23 Drill At PZ-2

APRIL 1994

PHASE II FIELD WORK

Roslyn ANGS

BEGIN: 6 April 1994
END:

Crew: EARL E PARKER II
MARK Escobar
JOE Byrd.

OBJECTIVES:

Remobilize Equip and Subcontractors
- Complete Soil Sampling
- Install Piezometers (3)
- Complete deep soil borings (3)
- Install Monitoring Wells (3)
- Obtain Water samples (2 rounds)

Subcontractors:

Soil Mechanics - Soil Drilling
Big Apple Testing - Well Drilling
NYTEST - Analytical Laboratory
Pratap Nasu - Surveyor

WEDNESDAY DAY 1 6 April 94

0815 Arrive at Roslyn ANGS.
Check in and brief Cpt Larry Johnson on investigative program.

Obtain equipment and inventory box.

0945 Walk the sites. Check drilling locations for obstructions.
Restake locations for Soil Sampling.
01-002 BH
02-003 BH
03-005 BH
BG-001 BH

1030 Brief Cpt Johnson on investigation plan. Will sample 4 boreholes tomorrow and finish on Friday if necessary. Will begin drilling piezometers Monday (11 Apr 94).

1100 Recieve a call from Lee Perry (ANGRC-CEVR/PM). Briefed him on the progress of the investigation and about the sampling plan for tomorrow. Mr. Perry requested preliminary data, soil gas survey results and field screening results from previous activities.

Faxed Soil Gas Survey and PID readings from previous investigations.

1130 Called John Morris to inform him of phone conversation with Lee Perry.

1145 Depart Station to go to NYTEST to meet with Joe Dockery to coordinate sampling and pick up sampling kit.

1155 Arrive at NYTEST. Coordinated sampling plan for SI. Discussed analytical needs. Joe Byrd and Mark Escobar tour the lab. Pick up sampling kit for tomorrows sampling.

1400 Go to Air-Weld to pick up Ultra-Air then to Store for Equipment.

1730 Return to Hotel. Earl E. Park

8 hrs

4/6/94

Thursday Day 2 7 April 94

0730 Depart hotel for Station.

0740 Arrive at Station. Prepare for drilling activities.

Mark Escobar sets up GC in room provided by the Station.

Joe Byrd begins to decon sleeves and end caps.

0830 Soil Mechanics drillers arrive at the Site. Robert Rogers is the driller again. Same crew from soil mechanics.

Walk the site with drillers.

0915. Drillers move to 02-003 BH
Safety Meeting : Emil Parker } OpTech
Joe Byrd
Mark Escobar
Robert Rogers } Soil Mech.

... sil... hazards. Emergency procedures.

1000 Begin Drilling at 02-003 BH
WEATHER : Cloudy, Drizzle, Windy.
Temp : 48°. High up to 55°
Calibrate PID : 100 PPM Isobutylene

1015 02-003 BH , Int 1
0.5-2.0' BLS
STP 5 - 0.5'-1.0' BLS
4 - 1.0'-1.5' BLS
5 - 1.5'-2.0' BLS
PID Opening : 0.0 PPM
ATHA : 0.0 PPM
Fill material Dark brown to Black charcoal grains. Sand, silty sand, silt w/ large angular gravel. Some clay particles. Poorly sorted.
% Recovery : 70%

1025 INTERVAL 2 5.0-6.5' BLS
SPT 6 - 5.0'-5.5' BLS
7 - 5.5'-6.0' BLS
7 - 6.0'-6.5' BLS
PID Opening : 1.7 PPM
ATHA : 3.3 PPM
Slight odor during drilling.
PID at Drill hole at 10.5 PPM

Brown Silty sand and silt. Moderately cohesive with only little clay. Gravel.
% Recovery : 60

1030 Interval 3 - 10.0' - 11.5' BLS
SPT - 19 - 10.0 - 10.5'
24 - 10.5 - 11.0'
19 - 11.0 - 11.5'
PID Opening : 1.6 PPM
ATHA : 2.5 PPM
Brown to black silty sand. Mostly a fine sand with little clay. Angular gravels
% Recovery : 80%

1040 Complete drilling and sampling at 02-003 BH. Move to 01-002BH

1055 SET up on 01-002 BH

1100 01-002 BH, Interval 1
0.5' - 2.0' Feet BLS
SPT - 15 0.5 - 1.0' BLS
- 12 1.0' - 1.5' BLS
- 17 1.5 - 2.0' BLS
PID Opening : 0.0 PPM
ATHA : 0.0 PPM

Fill material. Brown sandy silt, clay with gravel particles. Poorly sorted sand.
% Recovery : 90 %

1110 Interval 2 5.0 - 6.5' BLS
SPT - 3 - 5.0 - 5.5' BLS
- 9 5.5 - 6.0' BLS
- 13 6.0 - 6.5' BLS
PID Opening : 0.0 PPM
ATHA : 0.0 PPM
Brown sand, silty sand and gravel. Very poorly sorted sand with very little clay.
% Recovery : 80 %

1125 Interval 3 10.0 - 11.5' BLS
SPT - 26 - 10.0 - 10.5' BLS
- 37 - 10.5 - 11.0' BLS
- 43 - 11.0' - 11.5' BLS
PID Opening : 0.0 PPM
ATHA : 0.0 PPM
Brown to black silty sand, sand with large gravel particles. Very little clay. Very poorly sorted sand.
% Recovery : 70%

Recalibrate PID: 100 ppm Isobutylene
Weather: Clearing, No Rain Temp 58°

1140 Interval 3, DUPLICATE
11.5-13.0' BLS
SPT 25 - 11.5'-12.0' BLS
27 - 12.0'-12.5' BLS
25 - 12.5'-13.0' BLS
PID: 0.0 PPM
ATHA: 0.0 PPM
Sand. Brown sandy gravel. More rounded gravel. Some silt. Very little clay. Very poorly sorted sand.
% Recovery: 90%

1150 Complete Drilling At 01-002 BH. Drillers will Decon Augers before proceeding.

1210 Drillers complete Decon. Move to 03-005 BH

Set up over 03-005 BH
Recalibrate PID: 100 PPM Isobutylene

1210 INTERVAL 1 0.5-2.0' BLS
SPT - 7 0.5-1.0' BLS
- 10 1.0-1.5' BLS
- 14 1.5'-2.0' BLS
PID Opening: 0.0 PPM
ATHA: 0.0 PPM
Lt. Brown sand Silty sand with some clay particles. Very poorly sorted sand with small angular gravel and larger rounded gravel particles
% Recovery: 80%

1220 Interval 2 5.0'-6.5' BLS
SPT - 3 5.0'-5.5'
- 6 5.5'-6.0'
- 7 6.0'-6.5'
PID Opening: 0.5 PPM
ATHA: 0.0 PPM
Lt. Brown very poorly sorted sand, silty sand and clayey silt. Abundant gravel and clay.
% Recovery: 70%

Weather turning cloudy again
Temp: 60° More windy

1240 Interval 3, 10.0-11.5' BCS
SPT - 15 - 10.0 - 10.5' BLS
- 21 10.5 - 11.0' BLS
- 14 11.0 - 11.5' BLS
PID Opening: 0.0 PPM
ATHA: 0.0 PPM
Lt. Brown sandy silt, silt, slightly cohesive sand with fewer gravel particles. Very poorly sorted silty clay w/ sand.
% Recovery: 100 %

1250 Interval 3, 11.5-13.0' BCS
MS/MSD
SPT - 9 - 11.5 - 12.0' BLS
- 11 - 12.0' - 12.5' BLS
- 10 - 12.5 - 13.0' BLS'
PID Opening: 0.0 PPM
ATHA: 0.0 PPM
% Recovery: 100 %

1300 Complete drilling at 03-005 BH
Moving to BG-001 BH.
Recalibrate PID: 100 PPM Isobutylene

1320 BG-001 BH, Interval 1
0.5'-2.0' BLS
SPT - 2 - 0.5 - 1.0' BLS
- 2 - 1.0 - 1.5' BLS
- 4 - 1.5 - 2.0' BLS
% PID Opening: 0.0 PPM
ATHA: 0.0 PPM
No Asphalt cover. Dark, organic rich sand, silty sand and gravel with some clay. Very gravelly sandy loam.
% Recovery. 70 %

1330 Interval 2 5.0'-6.5' BCS
SPT 8 - 5.0 - 5.5' BLS
11 - 5.5 - 6.0' BLS
16 - 6.0 - 6.5' BLS
Pid Opening: 0.0 PPM
ATHA: 0.0 PPM
Lt. Brown sand mostly sand with some silt and gravel particles. little clay.
% Recovery: 80 %

1340 Interval 3, 10.0' - 11.5' BLS
SPT - 11 - 10.0 - 10.5' BLS
- 12 - 10.5 - 11.0' BLS
- 9 - 11.0 - 11.5' BLS
PID Opening: 0.0 PPM
ATHA: 0.0 PPM
Lt. Brown sand, siltly sand w/ gravel.
Saturated sand with very little clay.
% Recovery: 70 %

1350 Finish drilling at BG-001 BH
Drillers prepare to Grout holes.
Drillers decon equipment.

1400 E.P. and J.B. prepare to obtain
FIELD Blank #7

1430 E.P. and J.B. prepare to obtain
Equipment Blank #7

1435 Drillers move drums to drum
Area. Drillers finish work
and depart Site.
4 Drums added 02-003 BH, 01-002 BH
03-005 BH, BG-001 BH.

1500 E.P. and J.B. conduct Site Cleanup
E.P. prepares chain-of-custody form
for samples.
Joe Byrd secures boreholes.

1600 Earl and Joe complete site clean
up and samples are ready to
go to the lab.

Mark Escobar continues to Analyze
samples with the GC.

1605 Earl Parker and Joe Byrd depart
station to go to lab to drop
off samples.

Mark Escobar remains at Station
to complete GC analysis.

1610 Arrive at Lab.
Inventory samples and sign over
custody of samples to NYTEST.

1630 Depart lab for Hotel.

1640 Arrive at Hotel. Mark Escobar has not yet Arrived.

1650 Mark Escobar calls. He has returned to Hotel.

Complete work related Activities for the day. Prepare to eat a late lunch.

[illegible] 4/7/94 9 hrs

FRIDAY DAY 3 April 8 94'

0800 Arrive at the Station.
E.P. begins to prepare daily report to ANGRC summarizing yesterdays activities. FAX to PM.
M.E. summarizes the Analytical information on last years Activities to FAX to Project Manager (ANGRC)
J.B. Inspects site it insure clean And Abandonded holes are closed safetly.

0845 E.P. and J.B go to site to measure in locations of boring locations to put on site MAP for ANGRC.

Locate Piezometer locations. Mark on the ground for inspection.

0930 FAX locations And field screening results of yesterdays Activities And summarized information on last years Analytical results to ANGRC/CEUR PM (Leo Perry).

1040 Walk Piezometer locations with Cpt Larry Johnson (Station Civil Engineer) Tentative approval on sites is obtained.

All locations are as shown on Work Plan. PZ 3 is moved 30 feet west to put it on the asphalt away from overhead obstructions from nearby trees.

1100 Big Apple drillers arrive at the site. Ed Palma and John Barnes arrive to inspect the drilling sites and discuss the drilling program.

Walk the 3 Piezometer sites. All are fine with the driller.

Informs us of a delay in his mobilization to the site. They are delayed on a project and will not be able to get to Roslyn until Wednesday. This will require a two day delay in the drilling of the piezometers.

1215 Big Apple drillers take a California-style split spoon sampler to check its fit on their equipment and depart the site.

Try to call John Morris - OpTech, Lee Perry - ANGRC/CEVR and Bill Hedberg - HAZWRAP to inform them of the delay. Everyone is out of the office.

1230 Depart Site for Lunch

1315 Arrive at the Station. Call John Morris and inform him of the delay. Will use the time to prepare for drilling, organize previous data and survey in the

piezometer locations for groundwater flow direction determination.

Call Lee Perry. Inform him of the delay. He will postpone his arrival to Roslyn.

1410 Reach Bill Hedberg at HAZWRAP. Discuss delay in drilling program. He will postpone his arrival to Mon (18 Apr.) Discuss aspects of the investigation. ie. rationale for deep borings, Groundwater flow direction.

1430 Discuss drilling procedures w/ cpt Johnson, specifically, disposition of clean soil cuttings during the drilling of piezometers and monitoring wells.

Soil Cuttings that do not register contamination during field screening (ie PID and Field GC) will be placed on the soil spoil piles to be used to backfill Station activities. All contaminated soil during drilling will be drummed and stored.

1540 Prepare to close activities for the weekend. Station has a drill weekend scheduled. Insure equipment is secure and site is clean.

1550 Depart site.
E.P. and M.E. go to FED-EX drop for package to the office.

1615 Arrive at hotel.
End of the days activities

Earl E[illegible] 4/8/94 7.5 hrs

SATURDAY DAY 4 9 April 94

No Site Related Activities

4/9/94 0 hr

SUNDAY DAY 5 10 April 94

No Site Related Activities

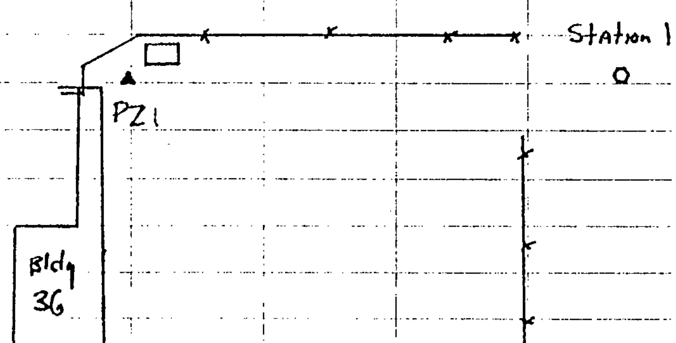
4/10/94 0.0 hrs

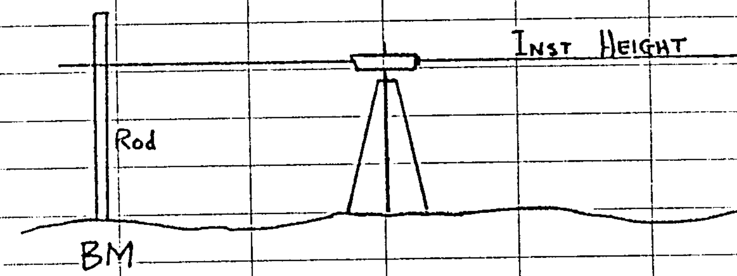
Monday DAY 6 11 April 94

0830 Depart Hotel to go to Station. E.P. J.B. and M.E. check site after a drill weekend. All boring locations are secure.

0900 Talk to Cpt Johnson. Obtain a transit and staeda rod to shot elevations of Piezometer locations. Using Benchmarks from previous work to shot elevations.

Set up transit at Road by IRP Site No. 3.





Station 1
Shot BM N.E. Foundation bolt
SE Corner Post 202.07'

BM 202.07' Rod : 4.48'
Inst. Height : 206.55'

PZ1 Rod : 4.69 ∴ PZ1 = 201.86'

PZ2 Rod : 0.80 ∴ PZ2 = 205.75'

Station 2
Shot BM & Catch Basin Rim
Site No. 1 201.57'

BM 201.57 Rod : 7.38
Inst. Heigh : 208.95

PZ3 Rod : 11.86 ∴ PZ3 = 197.09
01-004BH Rod : 6.56 ∴ 004BH = 202.39
Surv : 202.45

1130 Call ~~Bill~~ Bill Lodder concerning Worcester ANGS 51. Tried to reach John Richardson at Barnes but he was not in. left a message.

1200 Called Lee Perry but he was not in.

1215 DEPART SITE for Lunch.

1330 Returned to Hotel to phone Big Apple. No response from Ed Palma. Will call again at 4:00 pm to check status on drilling.

1400 Depart for Station.

1410 Arrive at Station. Continue Analytical Analysis of drums.

1535 Call ~~Bill~~ John Richardson at Barnes ANGS, Mass and discuss Issues concerning Worcester ANGS.

1600 Call Ed Palma with Big Apple Testing. He said they will be ready to begin drilling on Wednesday (4/13). Will be on site at 0800 that day.

1630 Begin to pack up for the day at the station. All items are ready for drilling to begin.

1645 Depart Station

1655 Return to Hotel.

1900 Compile analytical data on soil stored in drums.

[illegible] 4/1/94 8 hrs

TUESDAY DAY 7 12 April 94

No major activities at the Station.

Drilling of Piezometers to begin tomorrow.
Complete preparations for drilling.
- Maint/Cleaning of P10
- All vials for field GC are decontaminated and cleaned.
- Systems check on LEL / oil water Interface probe.

Approval of PZ1 drilling location for tomorrows activities.

Called Lee Perry (ANGRC/CEVR PM) on status report, drilling schedule and projected activities over the next few weeks.

Preparation of Worcester ANGS activities for Bill Ladder.

Carl E. [illegible] III 4/12/94 8 hrs

WEDNESDAY DAY 8 13 April 94

0730 Depart Hotel for Station

0740 Arrive at station
Prepare for drilling.
Set up field GC

0840 Big Apple drillers Arrive. Walk through the site. Show the drilling locations and talk about the contaminants found.

0900 Supply truck arrives with drillers supplies. PVC, grout, sand, ect. Begin to unload supplies

M.E. has g the field GC setup. Begins to calibrate.

J.B. obtains a composite sample from the three drums of soil cuttings from the piezometer drilled last phase. We will analyze the soil for BTEX for disposal disposition.

0930 Drillers continue to unload equipment And set up A decon site to clean Augers.

M.E. begins to Analyze composite sample from soil cuttings from PZ1 location.

WEATHER: Foggy, damp, and cool. Temp: 45°, very foggy. No wind. Expect rain later in the day. Hi - mid 50's.

1015 Drillers move to decon AREA And begin to clean augers.

1130 Drillers continuing to clean Augers. GC Analysis of soil from previous drilling indicates clean soil. No BTEX or Any peaks on GC. Will dispose of soil in drums At the backfill pile AS requested by CPT Johnson.

1150 Complete cleaning Augers. Break for lunch.

1215 Move to PZ1.
Safety Briefing
Earl Parker } OPTECH
Joe Byrd
John Barnes } BIG APPLE
John Barnes II
William Figero
Review site history and possible contaminants (hydrocarbons). Possible site hazards, emergency procedures, hospital route, eye wash station. Phone location. Weather hazards.
WEATHER: Overcast and drizzle. Winds are very light out of the east. Drizzle. Temp: 45°

1230 Begin to drill At PZ1.
Calibrate PID: 100 PPM Isobutylene
1250 Drilling to 20' BLS
Sand and silt. No odor. PID reads 0.0 PPM. No evidence of contamination

EP

1320 Drill to ~~60' BLS.~~ 50' BLS

Return cuttings indicate sand and silt with some clay layers. No moisture, no odor. P10 = 0.0 PPM.

Drizzle begins to increase to a light rain. Drilling beginning to go slower. Encountering rocks and cobbles in the surface return.

EP

1400 Drill to ~~68'~~ BLS 57' BLS

Drilling becomming more difficult as more cobbles are encountered. Return indicates rounded cobbles and gravel in a sandy-silty matrix with clay.

Drillers are pulling out auger flights to check the lead auger.

Lead auger lost its "door" that prevents cuttings from moving up the auger. Door was wood and they will need a steel door to prevent cuttings from moving up the augers.

1415 Drillers do not have a steel door. One will have to be fabricated. They can proceed no further today. Drillers depart site.

1430 Soil from previous P2 location is dumped on the cuttings pile. Three drums of cuttings were produced so far today.

ME is analyzing soil for BTEX. Soil had no P10 readings or odors.

1430 Analysis of Soil in Drum A
Strait line - no peaks.

1435 Analysis of Soil in Drum B
Strait line - no peaks.

1440 Analysis of Soil in Drum C
Strait line - no peaks

1450 Begin to deposit P21 soil cuttings in the backfill pile.

1530 Complete soil transfer. ME begins to pack up field GC station.

EP and JB cover soil at drill rig and prepare to close site for the day. Rain continues.

1630 Site closeout complete. Prepare to depart the Station.

1645 Return to Hotel. Call Ed Palma w/ Big Apple to discuss todays progress. He said he will be at the site tomorrow to see how the drilling will continue. Drilling options (O-DEX) may be necessary due to the boulders being encountered.

1650 Call Lee Perry (ANGRC/CEVR PM) and inform him of the days progress.

1800 Call John Morris in Hawaii to inform him of the days progress. He is not in, left a message for him to call me back.

[illegible] 4/13/94 8 hrs

THURSDAY DAY 9 14 April 94

0730 Depart Hotel for Station.

0740 Arrive at Station. Prepare for daily drilling at PZ-1.

ME sets up field GC.

0835 John Barnes (Driller) Arrives at the site. Says the crew is still fabricating the steel door and will be out soon.

1000 John Barnes Jr Arrives at the site and starts the rig. Crew Arrives with welded steel door And attaches to the rig. Preparing to begin drilling.

Safety Meeting:
Earl Parker
John Barnes Jr
Dr William Figero

Discuss todays drilling. Review hazards at the Site.

Weather: Clear, Sunny and Mild.
Temp : 65 Hi today low 70's
Winds out of the SW. very slight now but will increase thoughout Afternoon.

1005 Begin to Assemble Auger flights in the hole.

Drill down to previous days depth 57' BLS (NOT 70' BLS). Drill An additional 2 feet. Very difficult, then no progress. On a boulder.

1040 Retrieve Auger flight.
Lead Auger sheared A tooth.
Cannot penitrate And deeper At this location. Must move to attempt Another drill.

Moving 10' East to Attempt Again.

1100 Begin to drill Another hole for PZ1.

1108 At 40' BLS. Attaching next 20' lenght of Augers.

Soil is a poorly sorted sandy silt with clay lenses and abundant gravel and cobbles. No odor or no PID readings from soil or drilling location.

1130 Encounter 57' BLS interval and encounter boulders again. Drilling very difficult.

1135 No progress. Drilling halted at this location.

Moving back to near original location to attempt to drill using small (3¼) inch Augers.

1200 Set up over 3rd location to drill PZ1 using 3¼ inch Augers. Changing drilling equipment to hold new Auger size.

1210 Drillers take a short lunch break at the site.

E.P. calls Matt Alexander and explains the present situation of PZ drilling.

Calls John Morris but he is not in.

1230 Begin to drill again at PZ1 (third location) with 3¼ ID Augers. 20' String to begin.

1300 Adding 15' of drill pipe. (Augers)

1320 Adding 20' of Auger.

1351 Adding 20' of Auger.

1432 Drilling going very slow and difficult. Hydraulic pop-off valve leak on the drill rig.

1530 Complete pulling and stacking Augers. TD of the third attempt 85' BLS. Begin site clean-up activities.

Drillers will return tomorrow to begin O-DEX drilling at PZ-1.

1545 Drillers depart site.

1610 EP. J.B. M.E. Complete site closeout for the day - Break down field GC. Depart Site.

1630 Phone Lee Perry. He is not in. Left a brief message on today's results and will call him in the morning.

1635 Call Bill Hedberg. (HAZWRAP) he is not in. Left message and will call in the morning.

1640 Call John Swartwout (NYSDEC) to ask about deep boring requirements during SI at N.Y. Explained the O-DEX requirements at the site and about the proximity of the MW's in relation to the sites and if deep soil borings would be necessary. After a review of the situation at the Roslyn SI, he said a continuous description of the subsurface soils during the installation of the MW's would satisfy NYSDEC requirements and the deep borings are not necessary.

1530 Dan Eaton (NYSDEC) called. (I was not in). Message said he will call me back.

1910 Recieve a call from John Morris. Discuss situation at the Station. Since O-DEX will be required and based on the information from the NYSDEC, we will propose to ANGRC that the deep soil borings be eliminated and use the information obtained from the installation of the MW's.

2030 Recieve a call from Dan Eaton (NYSDEC) concerning O-DEX drilling procedures.

He was concerned with the 5-foot split spoon sampling with the O-DEX rig. He stated it was very time consuming and unnecessary for geologic classification. Geologic descriptions can be made from the surface return. He stated field screening was not possible. But NYSDEC would not require 5-foot or continuous split spoon sampling. Descriptions from surface return are acceptable

[illegible] 4/[illegible] [illegible]

FRIDAY — DAY 10 — April 15, 94

0730 Depart Hotel for the Site

0740 Arrive at Station - Prepare for the days Activities.
M.E and J.B. Set up and calibrate field GC.

0755 Call Leo Perry (ANGRC/CEVR PM).
Inform him of the overall situation and conversations with John Swartwout and Dan Eaton (NYSDEC).
Based on the concurrence of the State, the deep borings are eliminated from the field investigation.

5-foot interval sampling during the installation of the MW's will not be conducted with the split spoon. Geologic descriptions will be obtained from surface return during O-DEX drilling. If surface return shows contamination during field screening with the PID or field GC, then

drilling will stop to obtain A split-spoon sample for closer study and Analysis using the field GC.

0830 Call Ed Palma w/ Big Apple. Drillers Are obtaining equipment for O-DEX drilling. Will not be able to begin today. Will begin drilling on Monday. He will come out to the site this Afternoon for status meeting.

1000 Begin to compile Analytical data from previous investigation.

ME And J.B. Are working with the field GC.

1100 Sean Walters (Env Manager 106th EG) came by. Will be briefed on Roslyn Investigation.

1130 Meeting with Sean Walters. Discuss last Septembers investigation And Analytical results. Discuss this investigation And the well drilling And sampling.

1400 John Barnes And drillers Arrive At Site to deposit drill rods And set up the rig for O-DEX drilling.

Will Arrange for drill casing to be delivered on Monday to begin. Will expect drilling to take two weeks.

1440 Ed Palma from Big Apple will not be Able to make it to the field.

1525 Drillers complete re-configuring drilling rig for O-DEX drilling. Begin to clean-up And secure equipment for the weekend.

1545 Drillers depart the site.

1600 Call Lee Perry (ANGRC/CEVR PM). He is not in.

1610 Call Bill Hedberg (HAZWRAP). Inform him of the progress of drilling and give him a proposed work schedule. He may postpone trip till Monitor Wells are being drilled.

1630 Secure equipment and depart Station.

[illegible] 4/15/94 8 hr

SAT DAY 11 16 Apr 94

No Work Related Activities

[illegible] 4/16/94 0 hr

Sun DAY 12 Apr. 17, 94

No Work Related Activities

- Paperwork on Roslyn Work

Earl E. Parks 4/17/94 (00 hrs)

Mon DAY 13 Apr. 18, 94

0800 E.P. and J.B. arrive at the Site. Mark Escobar returned to San Antonio yesterday 4/17/94. Begin to set up for work.

~~C##~~

Trouble with the field GC. Air flow knob is frozen closed.

Waiting for driller to arrive at site.

0930 Call for Ed Palma at Big Apple. He is not in. leave message for him to call me. Call Norma at office about contract.

0950 Contact Lee Perry. Talk to him about Friday and the conversation with Sean Walters (Suffolk Env. Coord).

1030 John Barnes is at the Site waiting for the delivery of the drill casing.

1040 Call Big Apple. Ed Palma is not in. Talk to Jeff Aaffnpour (president). He was not completely familiar with the situation. He will come out today.

1115 John Barnes Jr. and crew Arrive at the site. Begin to prepare for drilling.

1130 E.P. and J.B. depart site to go to FED-EX to send back field GC.

Eat Lunch

1300 Return to Site. Drillers inventoring drill casing. Welding casing and lining up drill pipe in preparation for drilling.

1315 Call JEFF or Ed at Big Apple. Ed is not in and Jeff is unavailable. Jeff will be comming to the site this Afternoon.

Drillers continue to weld casing and prepare drill pipe.

1500 Drillers complete preparations. The Air compressor has not Arrived. It is the last piece of equipment we are waiting on.

1520 Drillers depart the Site. E.P. and J.B. wait for Jeff from Big Apple.

1530 Jeff Aafforpour from Big Apple Arrives at the site.

Discuss the drilling program and cost and time. Jeff does not know all the details of the Agreement. Will have to discuss the situation with Ed Palma and John Barnes. E.P. lets him know OpTech's position.

Will call him tomorrow (Tues) at 11:00 Am to insure all parties are in Agreement as to the work to be performed.

1630 Discussion Ends. Jeff departs the site.
E.P. And J.B. depart the Site.

[signature] 4/18/94. 8.5 hrs

TUESDAY DAY 14 April 19, 94

0800 E.P. And J.B. Arrive At the Station.

E.P. is left At the site to Await drillers And J.B. goes to FED-EX to insure field GC is sent back to HAZCO.

New GC will Arrive At Hotel this morning.

0845 John Jr. and helper (Bill) Arrive At the site. Once the Air compresser Arrives, drilling can begin.

0900 Turn on the rig. Making final preparations to begin drilling.

0910 J.B. Arrives At the Site. Field GC is off.

0915 Air compressor Arrives at the Site. Offload And prepare for drilling.

0920 Safety Meeting
Earl Parker
Joe Byrd
John Barnes
Bill Figero

Talk About O-DEX drilling system. John explains the process. identify hazards.

Weather: Sunny to partly cloudy and mild Temp: 60's high for today in the mid 70's. Sunny to P.C. chance (slight) of Afternoon showers. Wind out of the south east at 10 mph.

0940 Begin to drill at PZ1

Casing	Feet BLS	DESCRIPTION
0 - 10	0 - 5	Sand And gravel, small gravel with silt. Silty sand.
	5 - 10	Medium to Coarse sand, very poorly sorted with silt and pebbles.
10 - 25	10 - 15	Silt, clayey silt. fewer gravel And fine sand to silt.

15-20 Clay, Silty clay with some fine and medium sand. few gravel.

1050 Compressor is stopping. Drilling is going very slow in the clay.

1100 Begin drilling at ≈ 20' BLS
Compressor quits Again. Drilling halted so drillers can call for service

1115 E.P. goes to call Jeff at Big Apple. Says he has not been able to look into the drilling contract but will do so in the early Afternoon. Asks if I can call back at 4:00 pm.

1135 Return to drilling location.
Compressor is running so we begin to drill Again.

20-25 Compressor out Again.

Break for lunch so service man can fix compressor

1230 Service men Arrives and begins to fix compresser

1330 Compressor back in operation.
Begin to drill Again

1340 20-25 Clay - silt and fine sand.
Mostly clay and silt.
Drilling progresses slowly.

1410 Stop to attach next casing.
Casing interval 25-40' BLS
Begin to drill

25-40
25'-30' Silty clay, clayey silt w/ fine sand and gravel.
30-35' Silty sand, some medium sand w/ pebbles. Intervals of clayey silt.
35-40 Clay - silty clay. Very slow progress.

1550 Drilling for 30 minutes w/ no real progress in the clay.

1605 Drillers stop drilling. Prepare to remove hammer from the hole.

Having problems removing the air hammer. Cannot break drill pipe sections loose w/ O-DEX casing.

1615 Call Big Apple - Talk to Ed Palma. He is back in the office and will return the signed contract to Norma today.

Informed him of the difficulty we are having w/ O-DEX and the clay. Says he will talk to John Barns about the situation.

I will talk to John Morris and Lee Perry tomorrow and we will discuss how to proceed.

1700 Drillers are still attempting to remove air hammer. A drill pipe joint has frozen and they are trying to break it free.

1730 Pipe broken free. Continuing to retrieve air hammer.

1815 Remove air hammer for inspection. Air jets on the bottom of the hammer were clogged with clay preventing air from lifting cuttings from the bottom of the hole. May account for the slow rate of drilling.

Air hammer cleaned out. Appears to be working properly once cleaned out.

1830 Begin to re-assemble drill string.

1900 Drill string is reassembled and drilling continues.

35'-40' Continue in clay changing to a sandy silty clay.

1905 Stop to attach next casing.
Casing interval 40'-55' BLS

1928 Begin next 15' Interval (40'-55')
40-45' Sandy-clayey silt. Silt with medium to coarse sand and small gravel. More gravel to bottom.
45-50' Sand, Medium to fine sand with silt and small gravel. Silty sand near bottom. Gravel throughout.
50'-55' Fine sand and silt. Small rounded gravel. Sandy silt. Sand, fine to medium w/ silt. fewer gravel.

1940 Complete 15' interval
Pack up for the day

1950 Prepare to depart Site

2000 Return to Hotel.

Earl E. Parker 4/19/94 11.5 hrs

WEDNESDAY DAY 15 APRIL 20, 94

0800 Arrive at the Station.
Prepare and Fax progress report to Lee Perry.
J.C. Sets up and calibrates field GC.

0835 Drillers arrive at the site and set up for drilling.

Safety Meeting =
Earl Parker
John Barnes
Bill Figero
Review drilling and safety considerations at this site.
WEATHER: Sunny, clear and mild. Temp 60°. Hi: Low 70's. Clear to only Partly Cloudy and winds out of the southeast/southwest at 5-10 mph in afternoon.

0850 Drillers attach the next 15' of well pipe and casing.

0945 Begin to drill next 15' Interval
Interval 55' to 70' BLS
55'-60' Drilling proceeding very very slowly. Air hammer seems to be plugged with clay once again

1000 Drilling stopped.
Pulling up drill pipe to look at air hammer.

1035 Air hammer is clogged with clay.
Will clean it out again.

1110 Phoned Matt Alexander in office to give status.

1130 Air hammer clean and re-assembled.
Drill stem lowered into hole and begin welding casing to continue drilling.

1210 Complete welding drill casing.
Prepare to drill 55'-70' BLS Interval

1215 55'-60' Sandy, silty, gravelly w/ some clay. Mostly silty sand.
60'-65' Clayey, sandy silt w/ gravel. Small rounded gravel. Sand and clay.
65-70' Silt, clayey, sandy silt w/ small gravel.

1235 Stop drilling to add next 15' of casing and drill pipe.

1240 Call Matt Alexander and John Morris
Explain progress. Decide to continue as is.

1250 Drillers attaching next drill pipe.

1310 Break for lunch. Drillers welding casing.

1330 Complete welding casing.
Prepare to drill interval 70'-85' BLS

1340 70-75 Silt, clay and sand w/ gravel.
Mostly silty fine sand.

75'-80' Silty sand. fine to medium sand with silt and gravel.

80'-85' Sand, Medium to Coarse sand. Very little clay and silt. Larger pebbles (fragments) near the bottom.

1400 Complete drilling interval. Break to attach next 15' casing interval.

1410 Pulling air hamer for inspection

1435 Air hamer is fine. Air Jets are unclogged. Will Re-construct drill string and prepare for the next interval

1510 Complete welding drill casing Begin next interval 85'-100'

85'-90' Medium to Fine silty sand. Little clay and few gravel. More coarse near bottom with more gravel fragments.

90'-95' Medium sand with increasing rock fragments. To gravel interval. Grading to more medium and fine sand near the bottom.

95-100' Sandy to sandy silt. Becoming more silty w/ clay and gravel fragments. Fine sand, silt and clay.

1545 Complete 15' interval. Drilling began to slow near the bottom of the interval

Drilling is becomming slow due to the fact that the air pressure to lift the cuttings is becomming low. Since air jets are plugged to increase the pressure on the bottom jets to prevent them from clogging, the hammer cannot cut and lift at the same time. The driller cuts several inches, then lifts the hammer to blow out the cuttings. Drilling is very slow.

The Drillers have a larger compressor comming tomorrow to solve this problem.

FRIDAY DAY 17 April 22, 94

0800 E.P. and J.B. Arrive at the Site.
E.P. prepares daily progress report and sends to ANGRC/CERE
J.B. sets up the field GC.

0845 Drillers Arrive at the Site. Site clean-up at P2.1

Weather: Sunny and cool. Hi - mid 60's. Sunny all day and breezy. Temp: 55°

1000 Continuing site clean-up. Air hammer is out. Must get a new one prior to continuing drilling.

WL at P2-1
WL = 141.92' below MP
- 1.20 MP
140.72' BLS

1030 Begin to move equipment to P2 2.
Moving soil in drums to fill pile.

1215 John Barnes and Ed Palma come to the site. Bring lunch and talk with John Barnes Jr. Will call them later.

1430 Take WL at P2-1.
WL = 141.86' below MP
- 1.20 MP
140.66' BLS

P2 1 location is clean.

1500 Talk to John Barnes Sr. Air hammer will be in on Sat at 8:00 am.
We will drill tomorrow.

1530 Drillers continue to prepare for drilling at P2 2. Prepare air hammer for repair.

1615 Drillers go as far as they can today. Prepare to secure the rig for the nite.
J.B. breaks down field GC.

1630 Depart Site for the day.

Earl E Parks 4/22/94 8.5 hrs

145-150' Air pump blows water and mud out of hole.
Sand and gravel. Sand is wet. Medium to fine sand.
150-155 Sand and small rounded gravel. gravel increasing with depth.
155-160 Sand and gravel. Coarse to Medium sand with rounded gravel. Lt. Brown clay and silt at 156'. Saturated clay with angular pebbles. Grades to sand at 158'. Sand and Gravel at bottom

1600 Complete 15' Interval. Reached target depth of 160'. Actual = 158.5' BLS.
WL. ≈ 148' BLS

1615 Air hammer retrieved and is broken. Will have to obtain another Air hammer prior to beginning work at PZ 2. Begin to secure site for the day.

1635 Drillers depart site. Will construct the well tomorrow and move drilling operation to PZ 2.

1700 J.B. secures field GC and EP completes site clean-up for the day. Depart Site.

Call Matt Alexander and inform him of the days progress.

2130 Call John Morris and inform him of status of drilling program.

Earl E. Rauh 4/21/94 8.5 hrs

110-115 Coarse sand and gravel. Some silt and fine sand.

1108 Complete 15' interval. Begin to attach the next 15' interval.

1130 John Barnes Sr arrives at the site. Brings lunch for crew

1145 John Barnes departs site

1155 Begin next 15' Interval.
Drilling 115' - 130' BCS
115'-120' Sand. Medium to fine sand and silt w/ gravel and rock fragments. Turning to sand and rounded gravel near bottom.
120'-125' Sand, silt, and abundant quartz rock fragments. Drilling going slow. Sandy silt and gravel near bottom.
125'-130' Fine sand, silt, and clay. Mostly silty clay. Very dry. Medium to coarse sand w/ gravel and rock fragments w/ silt.

1240 Complete next 15' interval.

1250 Break for lunch
1320 Return to Station. Begin to attach next 15' interval and weld casing.

1415 Complete welding next 15' interval
Drilling 130'-145' BCS
130'-135' Fine sand and silt. Some but few rock fragments and gravel. Some clay. Drilling is slow.
135'-140' Medium to coarse sand and gravel. Rock fragments. Tending to get mix sand rich
140-145' Sand, coarse to medium sand with few gravel. Steam beginning to come from hole.

1440 Attach next 15' casing on to hole

1520 Begin to drill next 15' Interval
Interval is 145'-160'

1600 Drillers begin to break down for the day to obtain the larger compresser.

J.B. breaks down field GC.

1630 Drillers depart the site.
E.P. And J.B. depart the site.

[illegible signature] 8 hrs

THURSDAY DAY 16 21 Apr 94

0800 Arrive At the Site.
E.P. prepares And sends daily progress report for yesterday.
J.B sets up And warms up the field GC.

0900 Drillers Arrive At site. Begin to pull drill string to prepare Air hammer.

0930 Air Hammer prepared. New Air compresser Arrives At the site.

0945 Begin to reconstruct drill string.

1000 Add next 15' extension casing. Will weld it into place.

1045 Begin to drill next 15' interval
Drilling 100' - 115' BLS
100'-105' Coarse sand and gravel. some medium to fine sand with little silt.
105-110' Medium to fine sand and silt w/ gravel throughout. More gravelly near bottom.

SATURDAY DAY 18 23 Apr 94

0900 Arrive at Station.
Go to PZ1 for W.L.
WL = 141.84 below MP
- 1.20 MP
140.64 below L.S.

J.B. Sets up the field GC.

0910 Drillers arrive at the site. John Barnes Sr. is with them.

Safety Briefing:
Earl Parker
John Barnes Sr.
John Barnes Jr.
Bill Figero
Discuss new drilling location hazards and safety considerations.

Weather: Sunny and mild. Winds out of the southeast at 5 mph.
Temp: 49° High lower 60's.

0930 Welding on shoe to lead casing. Prepare for drilling. Attach Air hammer to drill rod.

1100 Begin to drill at PZ-2
Interval 0'-10' BLS
0'-5' Lt. Brown sand. Medium sand w/ small gravel. Very little silt. Black specks (Fill)
5-10' Brown sand. Coarse to Medium sand w/ small gravel. Little silt. Poorly sorted sand.

1107 Stop at 10' BLS. Prepare to attach next 15' interval.

1132 Begin to drill next 15' Interval.
Interval 10'-25' BLS
10-15' Sand. Poorly sorted sand with abundant rounded gravel at 11' BLS becoming more sandy and silty.
15'-20' Poorly sorted medium sand and gravel. Granite gravel fragments. Sand and abundant rock fragments

20'-25' More sandy with gravel. Medium silty sand with gravel. Sand and some silt with rounded gravel.

1148 Complete next 15' interval.
Begin to add next 15' casing.

1200 Break for lunch

1230 Return from lunch. Drillers welding next 15' casing.

1245 BEGIN to drill next 15' Interval
Interval 25'-40' BLS

25'-30' Brown sand and gravel. Poorly sorted silty sand with rounded gravel. Very little clay and little silt.

30'-35' Poorly sorted sand and gravel. Silty sand and well rounded gravel. Silty, gravelly sand.

35'-40' Brown, slightly silty sand. Medium sand w/ gravel. Rounded gravel. Few rock fragments.

1254 Complete next 15' interval.
Begin to add next 15' to casing

1345 Begin to drill next 15' interval
Interval 40-55' BLS.

40'-45' Sand and silt with abundant gravel and quartz rock fragments. Mostly sand, siltly sand and gravel.

45'-50' Sandy silty gravel. Abundant gravel w/ rock fragments. Sandy and silty sand near bottom.

50'-55' Sand. Coarse to medium sand w/ gravel, becomming more fine sand and less gravel. Medium to fine sand w/ gravel

1400 Complete 15' interval. Begin to Add next 15' casing.

1435 Begin to drill next 15' interval
Interval 55'-70' BLS

55'-60' Poorly sorted medium and fine sand w/ abundant gravel.

60'-65' Medium sand and gravel
Rounded to subangular gravel.
some but few angular fragments.
Clayey silt at 63' BLS. Clay
and silt w/ rock fragments
and gravel.

65'-70' Silt, sandy silt and clay
w/ fewer gravel. Silty clay
and clay. Silty sand to fine
sand and gravel at bottom

1442 Complete 15' interval. Begin to attach
next 15' interval.

1313 Begin to drill next 15' interval.
Interval 70'-85' BLS

70'-75' Fine sand and silt w/ gravel.
Few rock fragments.

75'-80' Fine to medium sand w/ silt
and rounded gravel. Silty
sand w/ some clay. Mostly
sand, silt and gravel.

80'-85' Sand, silt, fewer gravel
Mostly medium to fine silty
sand. Silty sand and gravel.

1330 Complete 15' interval. Begin to
attach the next 15' interval.

1605 Begin to drill the next 15' interval
Interval 85-100' BLS

85'-90' Sand and silt. Medium
to fine sand. Fine sand
and silt. Very little gravel
near bottom.

90'-95' Fine sand, silt and clay.
Some rock fragments. Mostly
fine sand, silt and clay (clay).
Fine sand and silt becomming
more coarse sand, gravel, and
rock fragments near bottom.

95'-100' Medium to coarse sand and
silt with abundant rock
fragments. Very poorly sorted
Sand, coarse to fine w/ silt.
rock fragments.

1650 Complete 15' interval. Slow, return
to the surface was weak. Pulling
drill string to inspect air hammer.

1700 Hammer is fine. Will not pull drill string. Begin to secure site for the day.

1715 Site is secure. Drillers depart site.

1720 E.P. and J.B. depart site.

Call Matt Alexander with summary of daily activities

Earl E. [illegible] 4/23/94 7.5 hrs

drill rig - Gus Pech - Brat 22R

CONTENTS

PAGE NO.	REFERENCE	DATE
	BIG Apple Testing (718) 767-2900 Ed Palma	
	Hotel - Roslyn (516) 625-2700	
	ANGRC/CEVR Lee Perry 1-800-237-9744	
	FAX (AV) 8-0-858-8121	
	Com (301) 981-8121	
	OPTECH Calling Card :	
	1-800-950-1111-0-(AC)-Num-532-731-	
	2951-9181	
	John Morris 698-0388	
	FED-EX : 1342-6486-1	

SUN	MON	TUE	WED	THU	FRI	SAT
24 No Work Related Activities	25 Complete PZ2. Move to PZ-3	26 Drilling at PZ3 0'-70' BLS	27 Complete drilling at PZ 3 Resurvey all PZ elevations	28 Survey, Set wells and Set screens at PS 5 and PS2	29 Pull casing at PS 2	30 Pull casing Set screens and Grout at PS 1, PS2, PS3
1 No Work w/ Drillers Well Levels	2 Drill at MW 01 to 85' BLS	3 Drill at MW01 to 135' BLS	4 Complete 01-OCI MW to 155'. Set Casing, Problems. Attempt to pull	5 Repair 01-OCI MW Drill out PVC casing	6 Complete to Set PVC at 01-OCI MW Move to 03-CCI MW	7 No Work Related Activities
8 No Work Related Activities	9	10	11	12	13	14
15	16	17	18	19	20	21

B. B. N. P.

Sunday DAY 19 4/24/94

No Work Related Activities

Earl E Park III 4/24/94

Monday DAY 20 4/25/94

0800 E.P. And J.B. Arrive At the site

J.B. Sets up field GC
E.P. prepares And faxes daily progress report for Saturday And prepares for todays Activities.

0845 Drillers arrive at the site.
J.B. supervising the movement of clean soil cuttings to the fill pile.

Drillers begin to pull drill stem to inspect the Air hammer.

0918 Air hammer is exposed. Looks good.
Air was blown through And All Air jets were clean.

0920 Begin to re-Assemble drill stem.
J.B. calls insitu to delay Arrival of the Hermit.

0933 Drill string Assembled. Adding next 15' Casing. welding onto casing string.

1005 Begin next 15' Interval.
Interval 100-115' BLS
100'-105' Very poorly sorted sand. Coarse to fine sand w/ some silt. No gravel. Few rock fragments. Becomming more gravelly near bottom.
105'-110' Very poorly sorted sand, silt And gravel. Medium to fine sand w/ silt And gravel.
110'-115' Very poorly sorted sand And gravel. Sand, silty sand, coarse sand And gravel. Few rock fragments.

1028 Complete 15' interval. Attach next 15' Casing And drill rod.

1106 Complete next 15' Attachment. Begin to drill 115'-130' BLS Interval.
115'-120' Very poorly sorted sand and gravel. Sand, silt And gravel.
120'-125' Sand And gravel. Medium sand w/ gravel And a few rock fragments. Some silt.
125-130' Sand. Fine to medium sand w/ silt And gravel. Some rock fragments. Mostly a very poorly sorted medium sand

1130 Complete 15' interval. Attach the
next 15' Casing and drill pipe.

1205 Complete attaching next 15' Interval
Drill Interval 130'-145' BLS
130'-135' Sand, silt, and gravel with
some dry clay.
135-140 Fine to medium silty sand w/
little dry clay. Few gravels and
rock fragments. Medium sand w/
some silt and gravel near bottom.
140'-145' Medium sand, w/ some fine
sand, silt, and gravel.

1240 Completed next 15' interval. Break
for lunch.

1315 Return to site. Drillers welding next
interval to casing.

CPT Johnson brings Mr Ford, Station
Supervisor on tour of work.

1340 Complete welding next 15' Section
of casing. Begin to drill.
Interval 145'-160' BLS interval
145-150 Sand. Medium to fine
sand with gravel. Steam
and wet sand present.
150-155 Sand - Medium to Fine sand w/
few gravel. No rock fragments.
155-160 Sand - Medium to Fine sand w/
few gravel. Sand and gravel.
Coarse to medium and fine
sand.

1405 Complete 15' interval. Reached target
depth of 160' BLS. Actual depth
is approx 159' BLS.

Drillers begin to pull drill pipe.

14:20 Call OpTech. Talked to Matt
Alexander. Gave him a situation
report.

1600 Moved Rig and drill equipment
to PZ3 location.

1630 Began to secure site for the day.

1640 Obtained WL from PZ2

WL = 144.46 above MP

$-$ 0.70 MP

143.76 ' BLS

1650 Depart Site for FED-EX station to mail package.

1700 Return to Hotel.

1930 Call From Bill Hedberg (HAZWRAP). Informed him of our progress And of our tentative drilling schedule.

Says he will fly back to Tennessee And keep in touch w/ progress. Will plan to visit when MW drilling is almost finished to see well construction, testing, And sampling.

Earl E. [signature] 4/25/94 8.5 hrs

TUESDAY DAY 20 4/26/94

0800 EP & JB arrive at the Station.

EP prepares daily progress report and FAX to ANGRC/CEVR.

Calls Lee Perry but he is not in.

JB sets up field GC.

EP prepares graphic log of PZ1 and PZ2.

0915 Drillers Arrive At site And prepare for drilling At PZ 3.

0950 FAX PZ logs to Matt Alexander

1000 Drillers having trouble with the Air hammer. Performing maintenance.

1115 Complete maintenance. Sand inside hammer did not allow it to close properly. It was cleaned out And works.

Safety Meeting.
Earl Parlur
John Bares
Bill Fegiro
Discussed site 3 (P23) situation.

Weather: Cloudy and cold. Temp 45°
Hi is mid 60's. Supposed to get
partly cloudy. Mist in AM.

1130 Prepare to drill initial 10' interval

0'-5' Brown organic rich soil. Mod
sand and silt w/ gravel and
rock fragments. Cobbles and gravel.
5'-10' Gravel, cobble and rock fragments.
Becomming sandy and gravelly
to a very poorly sorted, mostly
medium sand and gravel at bottom

1138 Complete initial 10' interval.
Begin to attach next 15' interval.

1150 Call Matt Alexander to check in and
give status report.

1220 Prepare to drill next 15' interval
Interval 10' - 25' BLS
10'-15' VPS Sand, silt, and gravel.
Much gravel and rock fragments
15'-20' Sand, silt, gravel and rock
fragments. Rounded to subangular
gravel, cobbles and rock and
quartz fragments.
20'-25' Sand, silt and gravel. Gravel
and Rock fragments. Steam
from pearched water. A good
bit of steam. No water.
Wet sand and gravel.

1235 Complete 15' Interval. Preparing next
15' interval.

1330 Break for lunch.

1330 Return from lunch. Drillers welding
next casing interval in place.

1350 Prepared to drill next 15' Interval
Interval 25' - 40' BLS

25'-30' Sand, silt, and gravel.
VPS sand and gravel.
30'-35' Sand, silt and gravel.
Some (few) rock fragments.
No evidence of water or steam. Sand and gravel.
35'-40' Sand, silt, and gravel. Some rock fragments. Mostly a VPS sand and gravel.

1400 Completed 15' interval. Drilling went very fast on this last interval.

Begin to attach next 15' interval.

1435 Complete attaching next 15' Interval
Begin to drill 40'-55' Interval
40'-45' VPS Sand and gravel. Small rounded gravel and rock fragments. Sandy w/ rock fragments and gravel near bottom.
45'-50' Coarse sand and gravel. Gravel and rock fragments. Becomming a bit more sandy near the bottom. Coarse sand and gravel

50'-55' Sand and gravel. Rock fragments. Becomming more sandy. Bottom is a medium sand and silt. Mostly a medium sand with rounded gravel.

1453 Complete 15' interval.
Preparing to attach next 15' interval.

1525 Begin to drill the next 15' Interval
Interval 55'-70' BGS
55'-60' Sand and gravel. Rock fragments. Fine to coarse sand and larger sub rounded to subangular pebbles and cobbles and rock fragments. More sand. fine to med sand.
60'-65' VPS sand, gravel and rock fragments. Coarse, fine sand and silt w/ gravel.
65'-70' Mostly VPS sand and gravel. Fewer rock fragments. Sand coarse to medium, and silt w/ gravel.

1543 Complete 15' interval.

Drillers break down And secure the site for the day.

1600 Drillers depart site for the day

E.P. And J.B. take water Levels ĩom P21 And P22

WL at P21

$$\begin{array}{rl} WL = 141.66 & \text{Above MP} \\ -1.20 & \text{MP} \\ \hline 140.46 & \text{' BLS} \end{array}$$

$$\begin{array}{rl} \text{Elevation LS} = 201.86 & \\ -\ 140.46 & \\ \hline 61.40 & \text{' AMSL} \end{array}$$

WL at P22

$$\begin{array}{rl} WL = 144.25 & \text{above MP} \\ -\ 0.70 & \text{MP} \\ \hline 143.55 & \text{' BLS} \end{array}$$

$$\begin{array}{rl} \text{Elevation LS} = 265.75 & \\ -\ 143.55 & \\ \hline 62.20 & \text{' AMSL} \end{array}$$

1630 EP and JB depart Site.

[illegible] 4/26/94 8hrs

WEDNESDAY DAY 21 4/27/94

0800 E.P. and J.B. Arrive at the Station.
EP prepares and sends daily progress report.
J.B. sets up and calibrates field GC.

0900 Drillers Arrive at the Site.
Maintenance and prepare for drilling at PZ 3.

Safety Briefing:
Earl Parker
John Barnes
Bill Figaro
Review safety issues.

Weather: Partly cloudy and breezy.
Temp: 58° High: Mid 70's.
PC to chance of T-Storms late this afternoon. Winds from the Southeast at 5-10 mph.

0945 Begin to weld next 15' interval to casing.

1012 Begin to drill next 15' interval
Interval 70'-85' BLS
70'-75' VPS Sand and Silt w/ some gravel.
75'-80' VPS Sand, silt, and gravel. Few rock fragments. Mostly a VPS sand and silt.
80'-85' Fine sand, silt and clay becomming a clayey, silty sand w/ few gravels. at 84' becomming a fine to medium sand w/ some gravel.

1026 Complete 15' interval. Prepare to attach next 15' interval.

1107 Begin to drill next 15' interval
Interval 85'-100' BLS
85'-90' Fine to medium sand and gravel. Some silt. Mostly fine to medium sand and silt.
90'-95' Fine to medium sand and gravel. Some silt.
95'-100' Fine to medium sand and silt with rounded small gravel.

1123 Complete Drilling 15' interval.
Begin to attach next 15' interval.

1155 Prepare to drill next 15' interval
Interval 100'-115' BLS
100'-105' Fine to medium sand and silt w/ gravel and few rock fragments.
105'-110 Fine to medium sand and silt w/ fewer small gravel. Mostly a silty fine and medium sand.
110'-115' Fine to medium sand and silt w/ gravel and few rock fragments. Silty fine sand and gravel

1212 Complete the 15' interval
Beginning to attach next 15' interval.

1220 Break for lunch

1250 Return to site. Begin to assemble next 15' interval.

1330 Prepare to drill next 15' interval
Interval 115'-130' BLS
115'-120' Fine to medium sand, silt, with gravel. Some rock fragments.
120'-125' Fine to medium sand, silt, and gravel. Silty sand and gravel w/ rock fragments.
125'-130 Fine to medium sand, silt and gravel w/ fewer rock fragments. Mostly a gravelly, silty sand.

1350 Complete 15' interval. Begin to attach next 15' interval.

1420 Prepare to drill next 15' interval.
Interval 130'-145' BLS
130'-135' Fine to medium silty sand and gravel. Few rock fragments.
135-140' Sand and gravel. fine to medium sand and gravel. Becomming more sand.
140-145' Medium sand and gravel mostly sand. Becomming wet at ~ 143' BLS. Medium sand w/ some small gravel. Steam.

1437 Complete drilling 15' interval.
Beginning to attach next 15' interval.

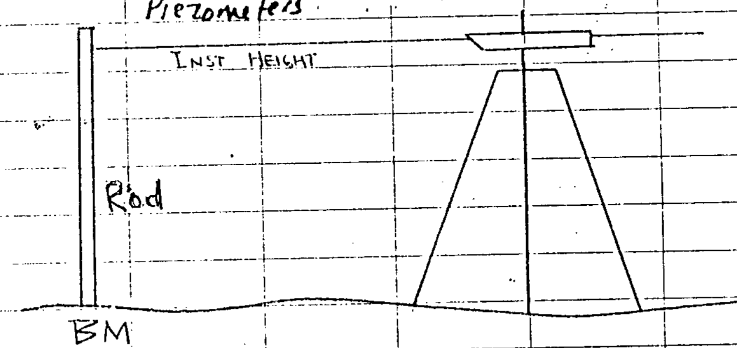
1508 Begin to drill next 15' Interval
Interval 145'-160' BLS
145-150' Medium sand and gravel.
Some fine sand. Steam.
Mostly a med. sand and gravel.
150'-155' Medium sand w/ some fine sand and few gravel.
155'-160' Medium to fine sand. Mostly medium sand. Few gravel.
Mostly medium sand

1530 Complete 15' Interval.
Reached target depth of 160' BLS.
Actual drill depth = 159' BLS

Drillers begin to pull drill rods and air hammer out of the hole.

1615 Drillers complete removing air hammer.
Begin site clean-up.

1620 E.P. and J.B. Survey in the three Piezometers



STATION 1
IRP Site No. 3
BM : NE Foundation Bolt
SE Corner Post 202.07 AMSL

BM : 202.07 Rod : 4.27
∴ Inst Height = 206.34' AMSL

Top PZ1 Casing : 3.00 = 203.34' AMSL
Ground at PZ1 : 4.45 = 201.89' AMSL

STATION 2
IRP Site No. 1
BM : ℄ Catch Basin Rim = 201.57

BM = 201.57 Rod = 6.10

∴ INST HEIGHT = 207.67

Top of Casing at PZ2 : 0.98 = 206.69' AMSL

Ground Surface at PZ 2 : 1.67 = 206.00' AMSL

~~STATION 3~~

~~BM ℄ Catch Basin at IRP Site No 1.~~

~~BM : 201.57 Rod : 12.52~~

~~INST HEIGHT 214.09~~

~~Top of Casing at PZ 3 : 5.90 = 208.19' AMSL~~

~~Ground Surface at PZ3 : 6.52 = 207.57' AMSL~~

1650 Obtain water levels from PZ's

PZ1 = 141.65' below Casing

∴ 203.34 - 141.65 = 61.69' AMSL

PZ2 = 144.18' below Casing

∴ 206.69 - 144.18 = 62.51' AMSL

PZ 3 Water level could not be obtained. Still agitated from drilling. Will obtain the WL in the morning.

1715 E.P. and J.B. depart the Site.

1800 Call John Morris and inform him of the daily progress

Earl E Pawlak III 4/26/94 8.7 hrs

THURSDAY DAY 22 4/28/94

0800 E.P. And J.B. Arrive at the Site.
Obtain Water Level information

P21	141.65
P22	144.20
P23	139.33

Error was determined in yesterdays elevations to P2 3.

0900 Drove J.B. back to Hotel for departure from New York.

0915 EP returned to the Site.
Drillers at site. Preparing to clean and set wells

Resurvey P23

BM ⊄ Catch Basin Rim at
IRP Site No 1. Elev 201.57
Elev. 201.57 Rod : 8.78
∴ Inst Height : 210.35

P2 3 Top Casing : 6.42 = 203.93'
Ground = 7.00 = 203.35'

Groundwater Elevations

		MP	
P21	141.65	(203.34)	= 61.69'
P22	144.20	(206.69)	= 62.49'
P23	139.33	(203.93)	= 64.60'

1015 Drillers do not have the tool they need to pull the casing to expose the screen. It was shipped to the wrong location. They hope to extractor will be in tomorrow.

Begin to jet the well at P23. Sand heaved in the well and it will be jetted out w/ air in order to set the screen.

1100 Attached the drill stem at P23 to jet the sand out of the hole.

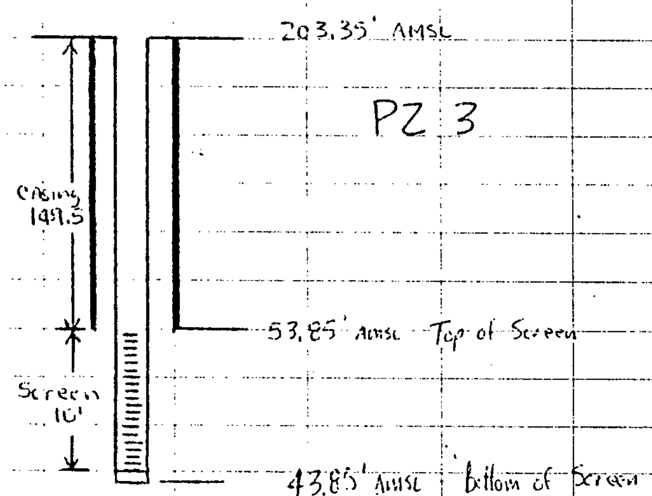
1140 Complete jetting sand from the hole. Beginning to pull drill rods to set screen. Add potable water to well to put head pressure.

1205 Begin to set the PVC screen at PZ3

Attach 10' screen .010 w/ end cap
Attach 15, 10' PVC sections

Total length of PVC well = 160'

PVC ~~screen~~ well extends 0.50' above land surface



1350 Complete setting screen. Set one Bag (100 lbs) of sand pack in well to stabalize piezometer base.

Begin to move equipment to set piezometer PZ2

1415 Begin to move 7 drums of soil to fill pile from PZ 3 drilling and jetting.

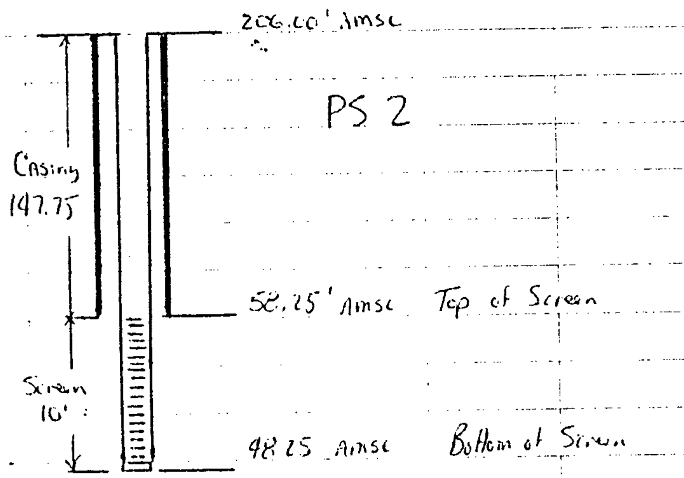
1440. Set up over PZ 2. Begin to jet sand out to bottom of ODEX casing at 160' BLS.

1455 Complete Air jetting. Begin to pull drill pipe to set PVC casing. Add potable water to put head pressure of heaving sands.

1525 Complete pulling drill pipe.
Begin to set the PVC screen at PZ 2
Attach 10' screen .010 w/ end cap
Attach 15, 10' PVC sections.

Total length of PVC in well = 160'

Casing extends 2.25' above land surface
∴ Total depth of well is 157.75' BLS



1610 Complete setting casing at PZ 2. Add one bag (100 lbs) of sand pack to stabilize bottom of well.

Prepare to clean up at PZ 2.
Drillers securing site for the day

1645 Drillers depart Station.

E.P. does clean-up work at PZ 3 and PZ 2.

1730 E.P. departs station.

Earl E. Parker

4/28/94 9 hrs

FRIDAY DAY 23 4/21/94

0800 E.P. Arrives At the Site. Prepares daily progress report And sends to NUGPC/CEVR.

0840 Obtain water levels from Piezometers

	BMP	MP	AMSL
P21	141.65	(203.34)	61.69
P22	144.20	(206.69)	62.49
P23	142.25	(203.93)	61.68

0915 Call OpTech for Mark Hanson's info And talk to Debbie Zipalski.

0930 Begin to summarize progress to report to John Morris. Complete well log on P23

Weather: Partly cloudy And slightly overcast. Temp: 49°. light winds from the southwest. Hi: low 60's w/ increasing chance of showers in the late afternoon

1040 Continue to summarize drilling history in A Memo to John Morris

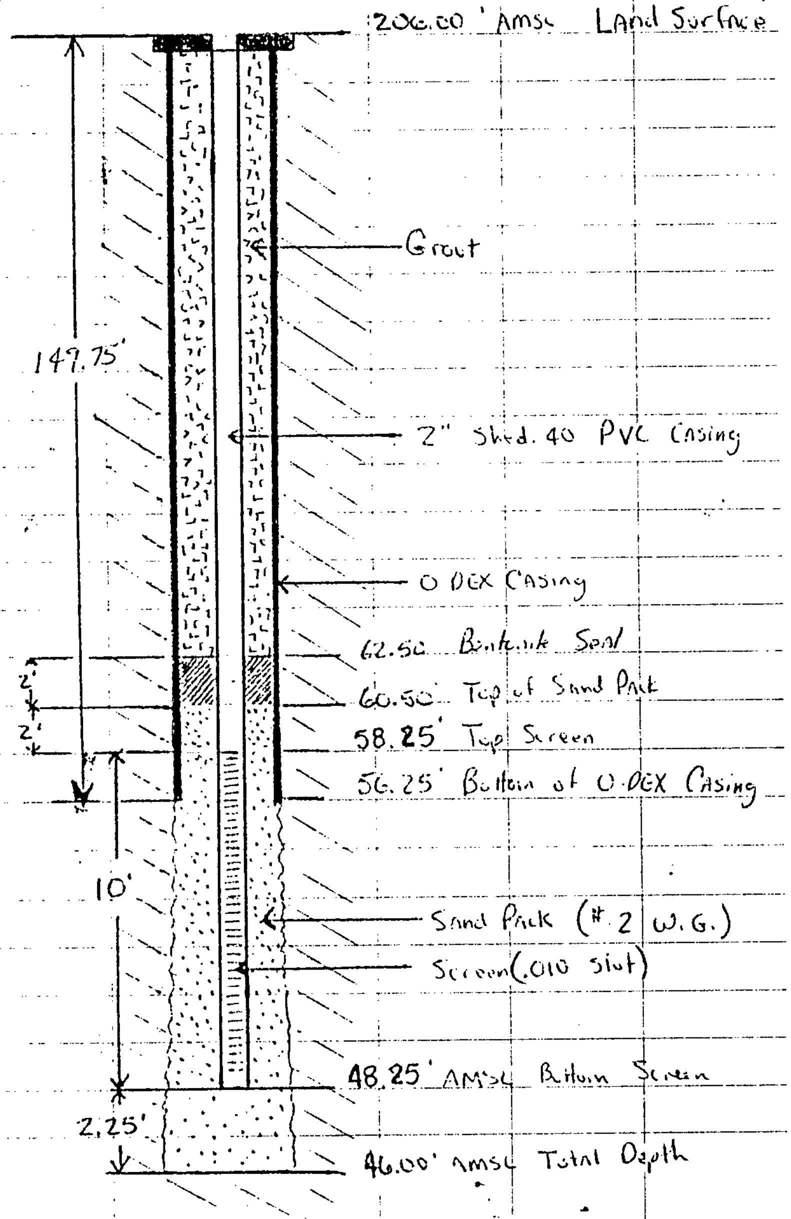
1230 Call Ed Palma (Big Apple) to find out when drillers Are. They received their extractor And will Arrive At the site soon. We will work tomorrow to complete setting the piezometers.

1400 Drillers Arrive At the site with the casing extractor. It will take An hour to prepare the equipment.

1515 Drillers welding extractor to bottom of O-DEX casing At PS2.

1535 John Barns Sr. Arrives At the site. Begin to hammer the O-DEX casing up to expose the screen. Adding #2 Washed Gravel And filter pack As casing is being lifted. Vibration of hammer settles sand And seals As casing is removed.

PS 2



1635	Complete lifting casing.
	Casing lifted and cut at 10.50'
	∴ 10.25' of casing lifted from
	the total depth.
	Unable to lift any more due to
	restriction on the drilling rig.
	Drillers will remove a 5' joint on
	the rig to allow for more casing
	to be pulled on future holes.
1710	Screen and gravel pack set. Drillers
	begin to remove 5' joint above
	extractor.
1740	Operations are complete. Begin to
	pack up site. Move drill rig
	to PS 1 for tomorrow
1805	Drillers depart the site.
	E.P. clean-up around PS 2
1815	E.P. departs the site.
	Calls John Mams at OITECH

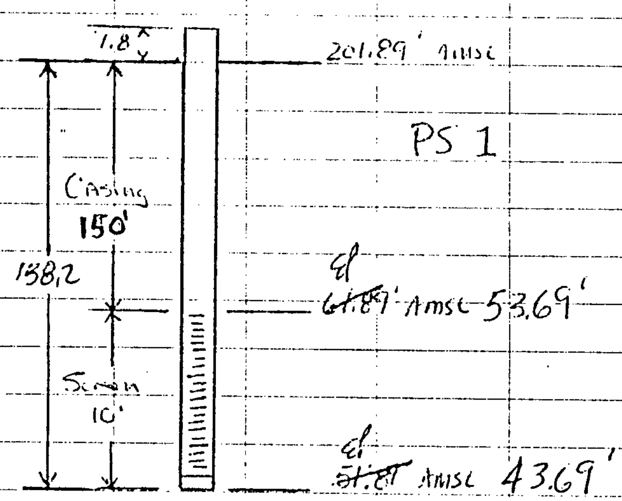
10.25 hrs

Eric C. Elrod [signature] 4/29/94

Saturday DAY 24 4/30/94

0800 Arrive at Site w/ drillers.
Begin to move PVC casing to PZ1 to set casing. Soundings indicate hole is deep enough to set casing.

0830 Begin to set casing in PS1



Attach 10' screen w/ Bottom Cap.
Attach 14 10' PVC casing

Total length of PVC in well = 160'
PVC screen flush w/ land surface
PVC Casing is 1.8' above land surface

0840 Begin to weld extractor to O-DEX casing.

To expose the screen, 20' of ODEX casing will be lifted.

0940 Begin to air hammer O-DEX casing out of the hole.

1095 10.3' of casing pulled.

∴ 160' original casing
− 10.3 Cut Casing
149.7
− 1.4' Casing above land surface
148.3' ODEX casing below land surface

53.59' Elevation bottom O-DEX casing

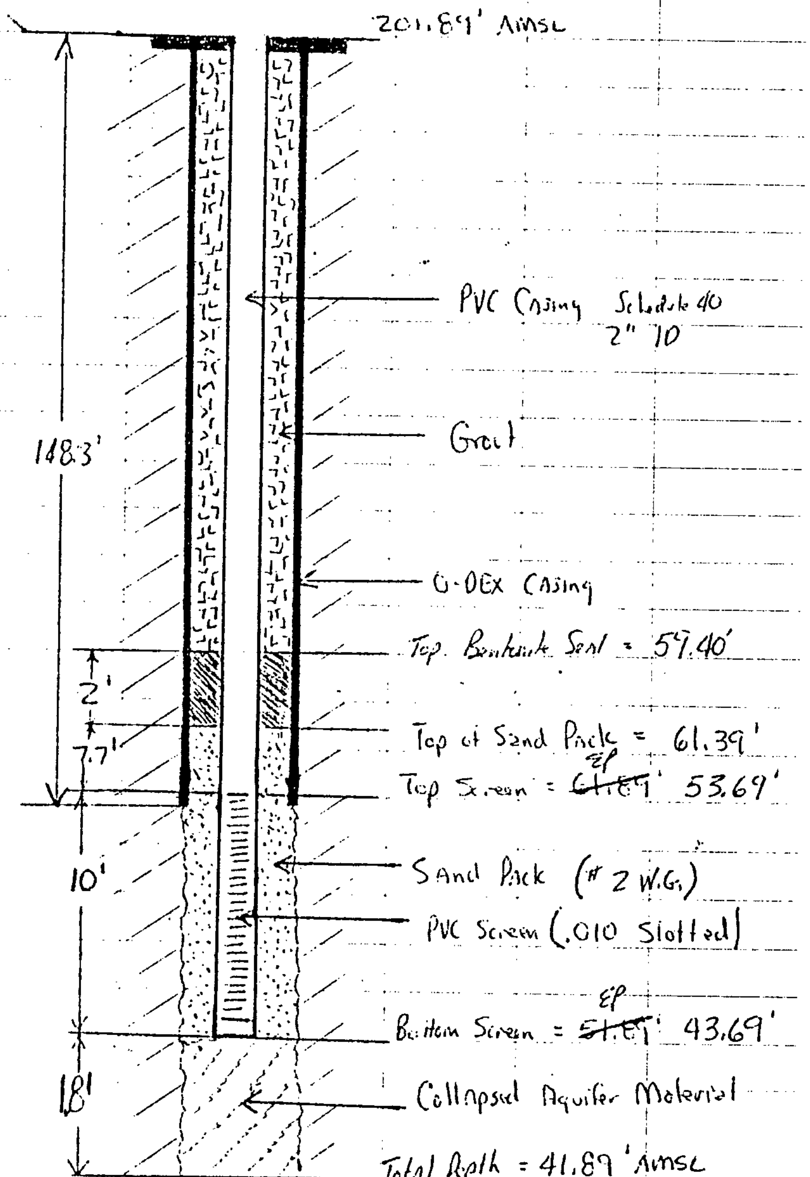
Sand Pack : 140.5' below land surface

61.39' Elevation top of sand pack

59.4' Grout seal.

Damage PVC casing while cutting ODEX casing. No access to well

PS 1



1200 Move to PS 3 location

Bottom of Screen 43.85'

Top of Screen 53.85'

Bottom of O-DEX casing 43.95' AMSL

Will lift 10' of O-DEX casing to expose the screen.

1220 Move rig over PS3. Begin to weld onto O-DEX casing.

1300 Begin to extract O-DEX casing.

1325 Complete pulling O-DEX casing.

11.3' of O-DEX casing removed.

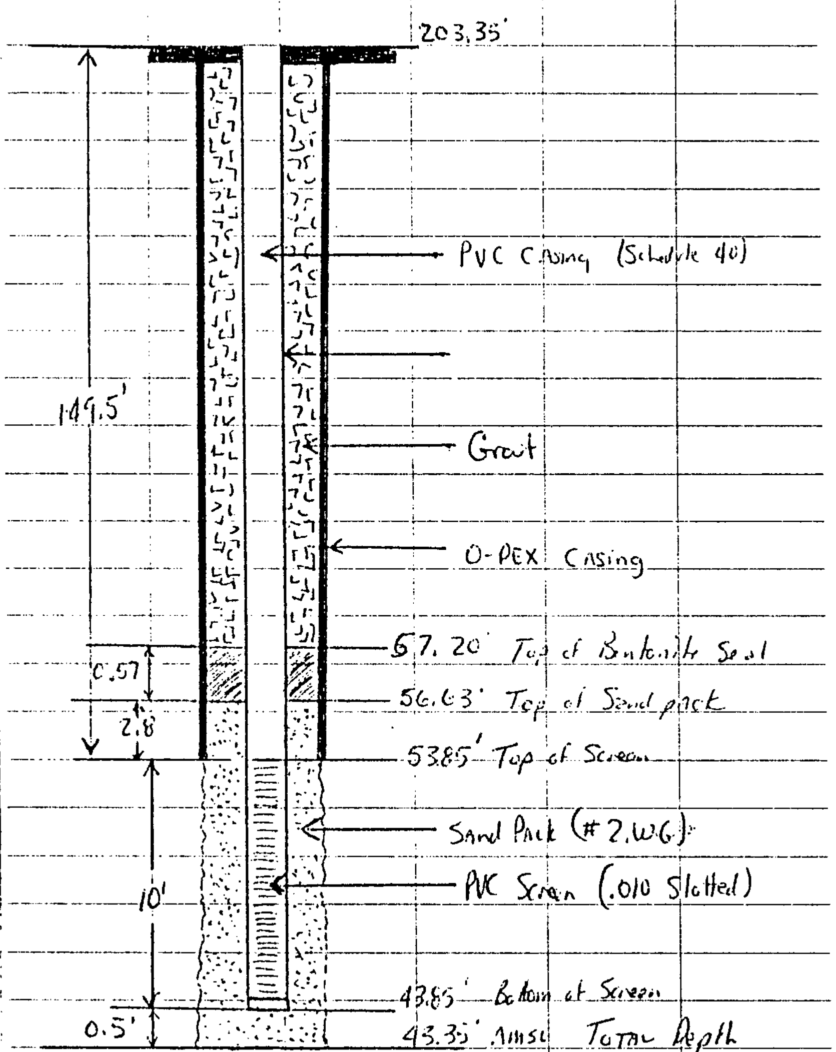
Sand pack to 146.72' BLS (56.63' AMSL)

∴ Sand is 2.78' above bottom of O-DEX casing.

Put bentonite Slurry seal.

1415 Move to P21 to grout

PS 3



1515 Mix grout and grout PS1 to the surface. 2 grout iterations 4 Bags of grout.

Grout Soil Boring at Site 3 03-005 BH.

1610 Moving to Grout PS2

1625 Begin to mix grout at PS2. Grout PS2 to the surface. 2 Grout iterations ; 4.5 Bags of grout.

Grout Soil Borings at Site 1 and 2 02-003 BH and 01-002 BH

1710 Moving to PS 3

1718 Cut casing and prepare to Grout PS 3

1750 Complete Grouting PS 3 to the Surface. 2 Iterations using 4.5 bags of grout.

1800 Begin to secure the site for the day.

1810 Drillers depart the site
E.P. departs the site

Earl E. Parkins[?] 4/30/94 10 hrs

Sunday DAY 25 1 May

Called John Mirns for status report at his residence to inform him of current situation.

Purchase a saw to cut damaged casing at PS1 to obtain water level.

1410 Arrive at station to collect water levels.

PS3 WL = 142.74
MP = 1.45
= 141.29' BLS

PS3 at 203.35 - 141.29 = 62.06' AMSL

PS 2 WL = 144.54
MP = 1.00
143.54' BLS

PS2 at 206.00 - 143.54 = 62.46' AMSL

Cut casing at PS1.

PS1 was damaged during installation of the PVC casing. When the hole was grouted, grout got into the PVC casing and the well collapsed. It is completely grouted up.

Additional water levels will not be possible from this piezometer.

1440 Depart Station

Return to Hotel to call John Morris about PS1.

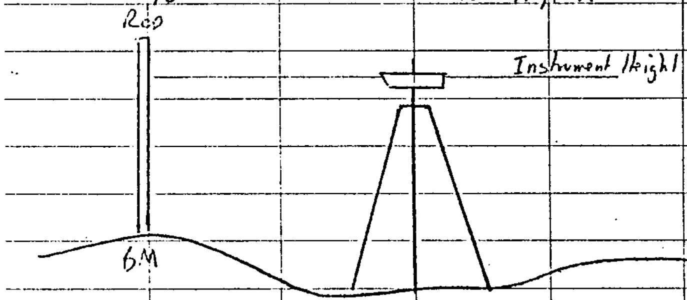
Will inform ~~Bill~~ Bill Lee Perry (MUCRC) and will use previous water levels for flow direction at the Station

Earl E Park II 5/1/94 3.5 hrs

Monday Day 26 2 May 94

0800 Arrive at the station w/ Mark Ikinson from OpTech.

Set up to survey in the piezometers to check elevations again



Station 1

BM 202.07'		Rod 4.58'	IH: 206.65' AMSL	
PS1	Rod: 4.80	Ele = 201.85	(201.89)	
PS2	Rod: 0.69	Ele = 205.96	(206.00)	
MW01	Rod: 1.49	Ele: 204.47		
Station 2	PS2: 205.96	Rod 2.02	IH: 207.98	
BM =	Rod: 6.38	Ele: 201.60	(201.57)	
PS3 =	Rod: 4.65	Ele = 203.33	(203.35)	

- All elevations are close enough to use original measurements

Weather: Clear and mild. Temp: 55°
Winds out of the southwest.
Hi today near 70. Windy, Mild.

Prepare to collect water levels at PS2 & PS3

0830 Drillers are at the site moving equipment for MW01 drilling.

0850 Obtain water levels from PS2 and PS3.

	(level)		(MP)			
PS2	144.96	-	1.00	= 143.96	=	62.04' amsl
PS3	143.15	-	1.40	= 141.75	=	61.60

Call ANGRC/CEVR for Lee Perry but he is not in.

0950 Drillers begin to set up at MW01. MW01 is moved to the north east side of IRP Site No 1 to place it upgradient of the sites.
Safety meeting: Errol Parker
John Barnes
Bill Fegiro
Review of safety concerns during drilling.

1030 Begin to set up on MW01

Call into OpTech to inform John Morris on status. Fax gradient map with location of MW-01. Gradient of groundwater is to the west, northwest at Approx 285°

Try to call Lee Perry at ANGRC/CEVR but he is not in.

1100 Begin to drill at MW01
Interval 0'-10' BLS
0-5' Sandy fill. Sand and gravel w/ some fill material.
5'-10' Sand, medium to fine sand, silt, and gravel.

1118 Complete drilling.
Begin to attach next 15' Interval
Drillers take lunch.

1150 Bill Hedberg (HAZWRAP) arrives at the site. Brief him on the situation and activities of the SI

1210 Complete attaching next 15' Interval
Begin 10' - 25' BLS Interval
10'-15' Sandy, silty, gravel. Mostly
sand and gravel w/ silt.
15'-20' Sand, silt and gravel. Mostly
a fine sand and silt w/
abundant gravel.
20'-25' Silty sand and gravel. less
sand. Mostly gravel.

1240 Complete 15' Interval. Begin to
assemble next 15' Interval.

1315 Begin to drill next 15' Interval
Interval 25' - 40' BLS
25'-30' Fine sand, gravel and abundant
large rock fragments. Drilling
through large boulders. Very
slow drilling.
30'-35' Fine sand, gravel and rock
fragments. Coarse gravel and
abundant rock fragments with
some sand and silt.
35'-40' Gravel becoming more sandy.
Medium sand w/ some fine sand,
silt, and gravel.

1355 Complete drilling 15' interval
Preparing to attach next 15' interval.

1425 Begin next 15' interval.
Interval 40' - 55' BLS
40'-45' Sandy, silty, gravel and sand
mostly fine sand, gravel and
rock fragments.
45'-50' Fine sand and gravel w/ abundant
rock fragments. Mostly fine
sand and gravel.
50'-55' Fine to medium sand, gravel
and abundant rock fragments.
Larger gravel and slightly more
sandy near the bottom.

1437 Completed 15' Interval.
Preparing next 15' Interval for drilling.

1508 Begin the next 15' interval
Interval 55' - 70' BLS
55'-60' Coarse sand and gravel.
Mostly small gravel, coarse
sand and few rock fragments.

60'-65' Abundant gravel and rock fragments. Large boulders drilling going slower. Some fine sand. Mostly gravel and rock fragments. Becomming more medium sand at bottom.

65'-70' VPS Sand, silt, clay and gravel. Soil is slightly moist and may indicate perched water. Slight steam was noted. Mostly a very poorly sorted medium sand and gravel w/ silt and clay.

1528 Complete drilling 15' interval
Begin to attach next 15' interval.

1554 Begin to drill next 15' interval.
Interval 70'-85' BLS

70'-75' VPS sand and gravel and silt. Slight steam. Some gravel and rock fragments. Becomming more silty near the bottom.

75'-80' VPS Silty sand. Sand, silt, and clay w/ some well rounded gravel. Very moist silty sand w/ little steam.

80'-85' VPS Sand, silt, and clay w/ gravel and few rock fragments. Becomming a medium sand and gravel well rounded gravel and sand. Moist.

1610 Complete drilling 15' interval

Begin to secure site for the day.

1630 Drillers depart the site

E.P. and M.H. secure the MW01 location

1645 E.P., M.H. and Bill Hedberg depart the site

Earl E Parker 5/2/94

8.75 hrs

TUESDAY DAY 27 3 May 94

0800 Arrive at the Site. Earl Parker, Mark Ikuson, Bill Hedberg

E.P. prepares daily progress report and sends it to Lee Perry (ANGRC/CEVR).

0900 Call Lee Perry (ANGRC/CEVR). Talk about progress of the investigation. Inform him of the new location of 01-001 MW due to groundwater flow direction. Talk about the placements of 02-001 MW and 03-001 MW.

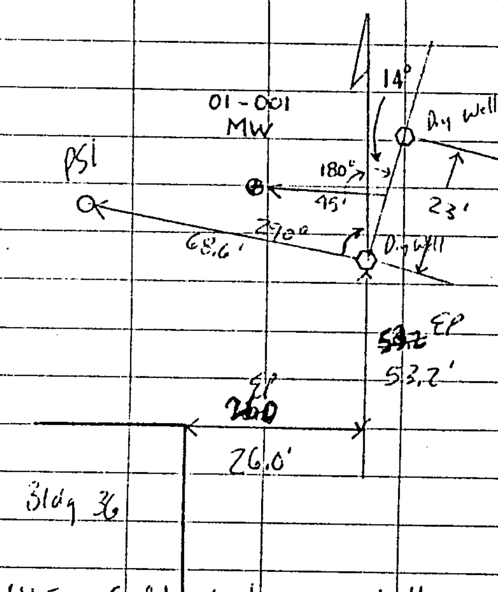
03-001 MW will be placed down [illegible] the two dry wells in the parking lot as near as possible to remain out of the area of flooding during rains. These two dry wells overfill during periods of medium to heavy rains.
02-001 MW will be placed on the edge of the pavement down gradient from the two dry wells at Bldg 16 and 9

0940 Drillers arrive at the site. Begin to prepare for drilling.

1030 E.P. and M.H. walk to 02-001MW and 03-001 MW locations.

Drillers are moving augers to a central location.

IRP Site No. 3 - 03-001 MW



1115 Safety Meeting w/ drillers. Weather is Sunny and Mild. Hi - Mid 60's

1135 Drillers begin to weld on next 15' Interval.

1150 Drillers begin to drill next 15' Interval
Interval 85'-100' BLS
85'-90' Very coarse sand and gravel w/ Abundant rock fragments. Mostly coarse sand.
90'-95' Fine to medium sand mostly medium sandy gravel and some rock fragments. Abundant gravel w/ fine to medium sand. Becoming more sandy near the bottom.
95'-100' Fine to medium sand with gravel. Mostly medium and fine sand. Few small well rounded gravel. Mostly fine sand gravelley medium sand.

1210 Complete drilling 15' interval

1240 Attach next 15' interval. Begin to drill Interval 100'-115' BLS.
100'-105 Medium to fine sand and gravel. Few rock fragments. Mostly a fine, to medium gravelly sand.

105'-110' Mostly medium sand w/ fine sand and gravel. Few rock fragments. Medium sand.
110'-115' Mostly medium sand with some fine sand and gravel. Mostly a medium to fine gravel sand. More medium sand near bottom.

1305 Complete 15' Interval
Break for lunch after adding next 15' Interval to drill string.

1433 Complete attaching next 15' interval
Begin to drill 115'-130' BLS interval
115'-120' Sand, medium to fine sand, gravel and rock fragments. Coarse to medium sand w/ gravel.
120'-125' Mostly medium to fine sand, gravel, and abundant rock fragments. Fine to medium gravelly sand and rock fragments.
125'-130' Medium to fine sand and gravel. Mostly medium and fine sand w/ gravel. Very few rock fragments.

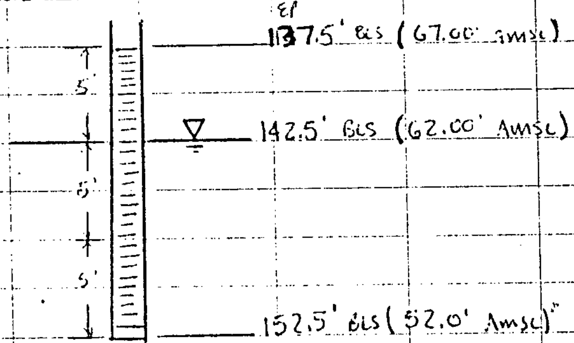
1458 Complete drilling on 15' interval.

Water at 01-001 MW is estimated to be : 62.0' amsl

∴ 01-001 MW 204.47' AMSL
-62.00
142.47' Below land surface

w/ 15' Screen. we want 10' in water and 5' above water.

∴ Screened interval



Will drill O DEX casing to 155.00' BLS
Will set screen bottom at 152.5' BLS

1532 Begin to drill next 15' Interval
Interval 130'-145' BLS
130'-135' Fine to medium sand, gravel, silt, and few rock fragments. Mostly a fine to medium sand.
135'-140' Fine to medium sand. Gravel and sand. Mostly a medium to fine sand and gravel.
140'-145' Medium sand and gravel. Some fine sand and gravel. Mostly a medium sand. Steam present at 143' BLS. Sand and some gravel.

1553 Complete 15' Interval
Begin to secure the site for the day
Will drill last interval and screen tomorrow.

Prepare to concrete cap boreholes and other abandonded piezometer well locations. Bill Hedberg departs site.

1630 Move over to AS1 area to concrete the holes in the asphalt.

1740 Move over to boreholes at IRP Site No. 1 and 2 and cement cap boreholes.

1805 Complete cement work. Pick up equipment and secure site.

1815 Depart Site. Drillers depart and E.P. and M.H. depart site

Earl E. Parker 5/3/94 9.3 hrs

WEDNESDAY DAY 28 4 May 94

0800 Earl Parker, Mark Henson, Bill Hedberg Arrive at the Station

E.P. prepares and sends OpTech daily progress report.

M.H. sets up and calibrates field GC.

0900 Drillers arrive at the site. Prepare for operations. Discuss Safety considerations for O-DEX extraction procedures. Get the sampling hammer and split spoons prepared. Prepare to finish drilling and get decon area ready.

0953 Begin to drill last interval
Interval 145 - 155' BLS
145'-150' Medium to fine sand and gravel. Mostly medium sand. Fewer small gravel. Steam and wet sand.

150'-155' Medium sand. Some fine sand and gravel. Mostly a medium sand.

1005 Complete drilling 2.3' of casing at the surface. Hole drilled to 155.7' BLS.

1018 Blow out hole w/ air to clean out casing as much as possible. Beginning to pull drill string to remove hammer.

Measure screens

PVC Section 1	19.96'
" " 2	20.00'
" " 3	19.97'
" " 4	20.00'
" " 5	20.00'
" " 6	19.97'
" " 7	20.00
Screen Section	10.02'
Screen w/ End Cap	6.10'
	156.02'

1100 Obtain split spoon sample from aquifer material.

PID OPENING 0.0 PPM

Obtain sample for GC Analysis.

1103 Begin to assemble and run screen down casing.

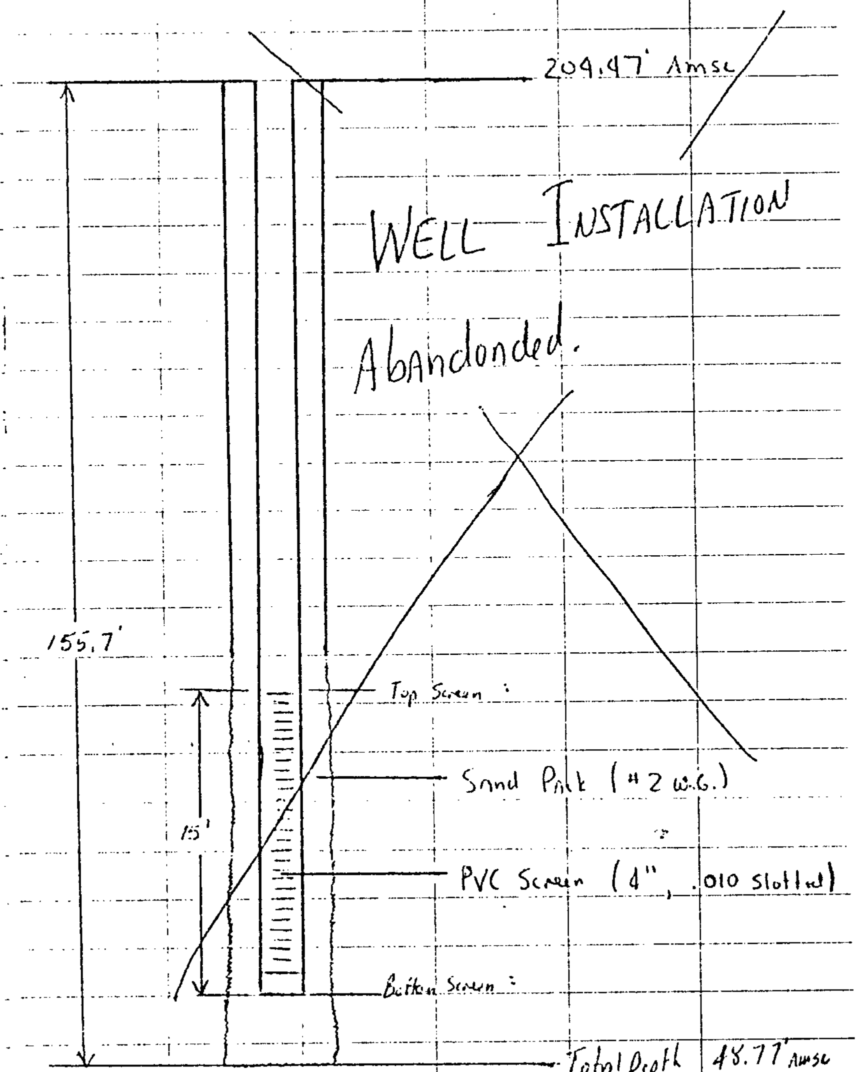
1115 Complete running screen in the well. Assembled 5' screen w/ end cap, 10' screen, the PVC sections 1 to 7.

PVC Section 7 ended up 7.8' above land surface. Cut off 5.36'

∴ Bottom of well casing is 148.22' BLS, MP = 2.3' casing above land surface.

Initial water level

1120 hrs	148.76 below MP		@ 1130 hrs 148.69
	2.30' MP		2.30
	146.46' BLS		146.39'



Cut from PVC casing 5.36'.

Total length PVC = 156.02 - 5.36 = 150.66

Bottom of O-DEX Casing : 155.7' BLS
Bottom of Screen : 148.22 BLS
Top of Screen : 133.22' BLS

Pull O-DEX Casing to : 133.0 BLS

Must Remove 22.7' ODEX Casing.

1230 Cut off first O-DEX section of
9.40' w/ O-DEX MP of 1.0' above land.
Bottom of O-DEX Casing : 149.6' BLS

Casing MP is now 2.0' Above land surface
∴ Casing settled 0.3' down
Bottom of ~~Casing~~ PVC Screen : 148.66

1303 Water Level 145.74
- 2.00 MP
143.74' BLS

1350 Begin to lift O-DEX Casing again.
Add ½ bag # 2.W.G.

Begin to pull up well. Casing and well are comming up together.

Well has risen 1.4' up since we began. Stopped lifting casing to attempt to stabilize well.

Bottom of casing and PVC screen: 147.26

1510 Unable to prevent well from rising with O-DEX Casing. The PVC well is firmly adhered to the O-DEX Casing by the gravel pack.

It is determined to pull the well and drill and reinstall the well. This time, the well will have a 10' screen as stated in the work plan and the well will be immediately hydrated with water in order to minimize sand heaving within the well.

Both of these factors should minimize the distance the O-DEX casing should need to be raised to expose the screen.

1520 Attempt to remove PVC well from O-DEX casing. Well breaks at the 2nd PVC section from the bottom. 40' of PVC casing plus 15' of slotted screen remains in the hole.

1610 Drillers will discuss options to remove remaining well and re-drill O-DEX casing to attempt to set the well again.

O-DEX casing cut 4' below the 145' joint. There is now 141.0' of O-DEX casing in the hole.

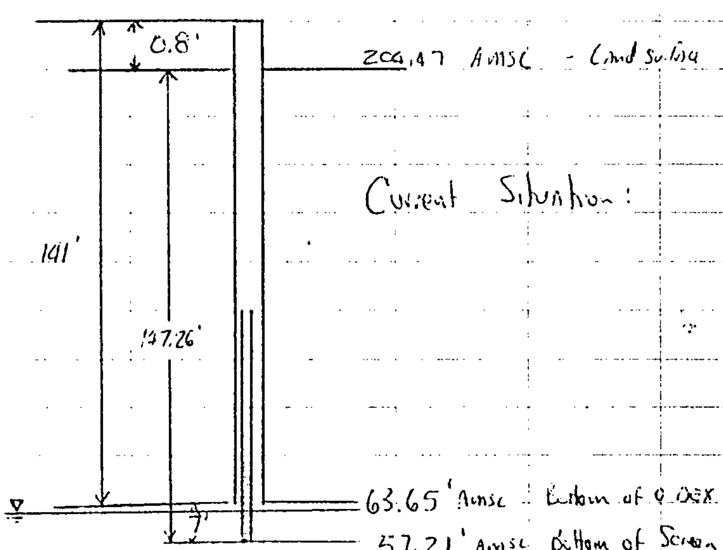
1620 Drillers begin to secure the site for the day.

1630 Drillers depart the site.
Bill Hedberg departs the site.

E.P. and M.H. perform site clean-up and secure equipment.

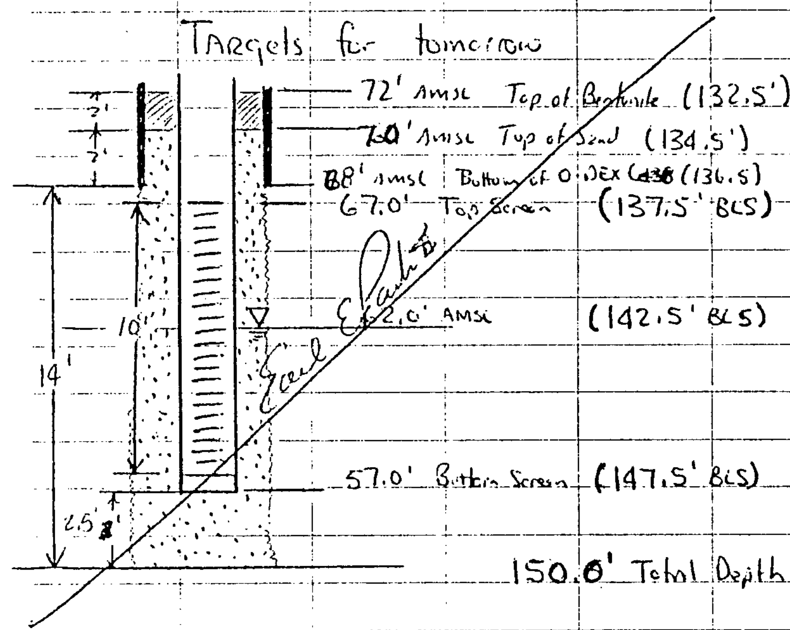
1640 EP and MH depart the site.

2030 Preparing plan to re-drill well for tomorrow.



Current Situation:

Targets for tomorrow



Must drill with O-DEX an additional 10.3' BLS.

Will pull O-DEX casing up 14.0'.

Earl E[illegible] 5/4/94 9.5 hrs

Thursday DAY 29 5 May 94

0815 Arrive at the Station
E.P. prepares daily progress report and reviews calculations for the re-attempt to install 01-001-MW

MH warms up and calibrates field GC and prepares PID.

0910 Drillers arrive at the site. They will use an air hammer to break up and remove old casing from well.

Begin to attach air hammer and drill string.

1010 Begin to hammer on PVC casing. Hammer encounters casing at ≈ 95' BLS

PVC cuttings come to the surface as he drills.

1100 At approx 125' BLS. O-DEX casing begins to go into the ground. Stop drilling, in order to attach 10' section to O-DEX casing.

1148 Complete attaching 10' casing onto O-DEX casing. Beginning to drill again. Encountering the well screen.

1300 Attach next 15' interval and ready to drill. Break for lunch.

This next 15' interval will intersect the bottom of the O-DEX casing at 6'. The air hammer will not fit past the shoe on the lead casing so it will only be drilled 6'. We will then be at ≈ 144' BLS.

1409 Drill to the O-DEX shoe with the air hammer. Now at 144' BLS. Blow air and clean out hole. Prepare to extract the air hammer to replace w/ O-DEX hammer to continue hole.

1520 Removed Air hammer. Large pieces of PVC screen are removed. Drillers begin to re-assemble drill string with O-DEX hammer.

1600 O-DEX hammer and drill string are in the hole. We will proceed with the final drilling and setting the new well tomorrow.

Bill Hedberg informs me this will be his last afternoon in the field. Gives informal de-briefing on his observations in the field.

1610 Drillers depart site.

16:20 E.P. and M.H. Secure the site and depart the station.

2130 John Morris Calls and I inform him of the situation at the Site

[illegible] 5/5/94 8 hrs

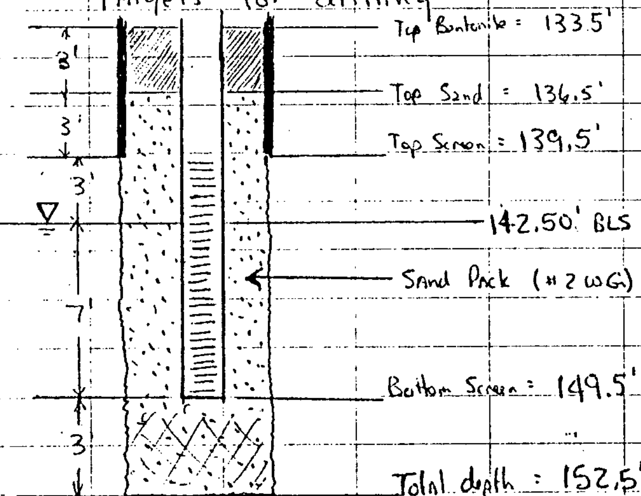
Friday DAY 30 6 May 94

0815 E.P. and M.H. Arrive at the Site. E.P. prepares daily field report and faxes to Leo Perry (ANGRC/CEVR)

Attempts calls at 0830 and 0900 but he is not in. Left a message.

0915 Drillers arrive at the site. Prepare for drilling. Attach O-DEX casing to drill last interval

Targets for drilling



Attaching 9.3' length of O-DEX casing
to O-DEX string 146.1'

∴ O-DEX string casing is 155.4'

for O-DEX to go 152.5' BLS
we need to stop drilling at
2.9' of O-DEX above land surface.

1040 Begin to drill last 10'. Some casing blows
cut but mostly wet sand. Near bottom, no
casing. Just sand. Lay out PVC sections
for entry into well

PVC Section 1	19.97	* Optional
2	20.00	
3	20.00	
4	19.98	
5	20.00	
6	20.00	
7	20.00	
8	20.00	
PVC 10' Screen	10.30	
	150.28	
End Cap	+ 0.35	
Total	= 150.63	

1120 Stopped drilling, Air out hole
1122 Begin to add water to well

Pull out drill rods.
O-DEX casing is 2.8' above land
surface - ODEX end is at 152.6' BLS

1137 Complete adding water to well
Continue to pull out drill rods.

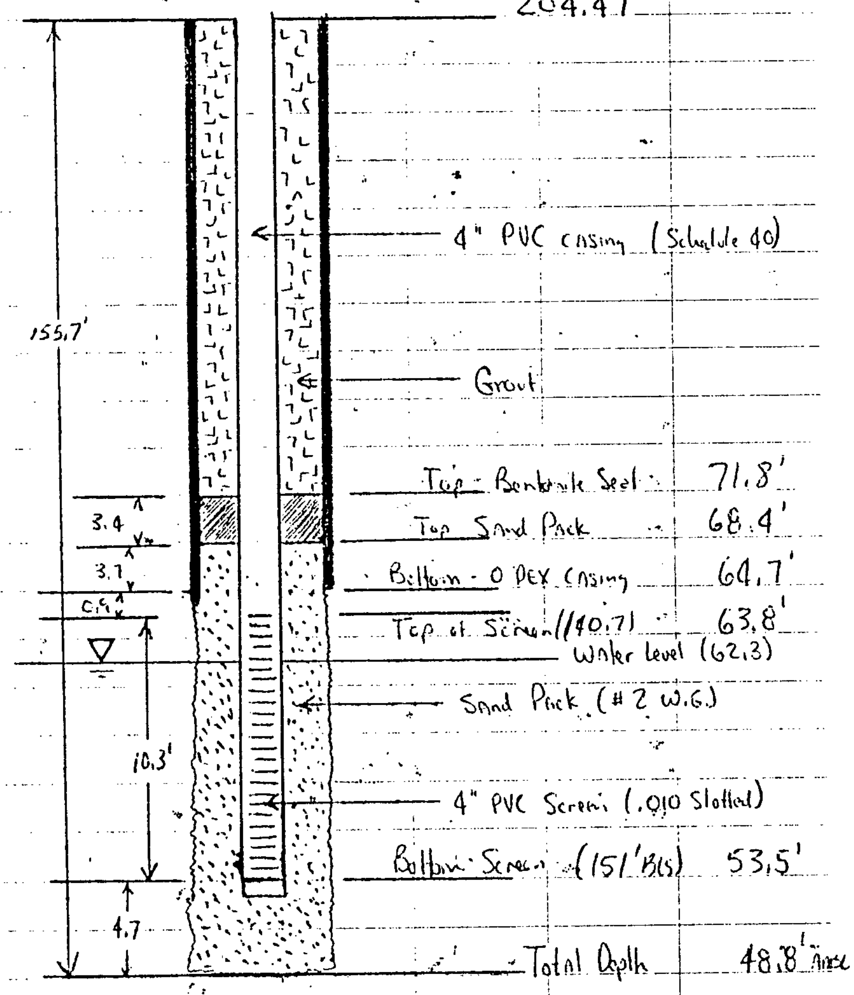
1155 Complete pulling out drill rods.
Pulling Air hammer.

Preparing to set PVC Screen.

Mark Henson attaches endcap
to 4" PVC screen (.010 slotted,
10' in length)

Begin to run screen down
the hole. EP and MH
attach screen and 1st PVC
interval using clean gloves.
Drillers continue to install
PVC casing in the well.

01-001 MW



1210 Complete assembling the well.
Complete attaching all sections and it extends 6.5' above the land surface.

∴ Bottom of screen is at 144.13' feet BLS.

We had 8.5' of sand heave in the well even with the water.

Measure water flow into well.
Water at 1 gallon per 28 seconds.
Water flowed for 15 minutes.
Therefore 32.15 gallons was added to the well.

1235 Drillers break for lunch. We will air jet the bottom of the well using an air hose to settle the well deeper.

1250 Begin to lower air hose in the well. Attach to small

Air compressor on the rig.

1310 Begin to air jet the well. Well falls down into well approx 7.0 feet to 0.5' BLS.

Bottom of PVC casing is now 151.1' BLS. Complete air jetting and remove air hose from the well.

1325. Begin to attach O-DEX extractor to casing to lift O-DEX casing to expose the PVC Screen.

Bottom of O-DEX casing 152.6' BLS
Bottom of PVC screen 151.1' BLS
Top of PVC Screen 140.8' BLS

Will pull O-DEX casing to 140' BLS
∴ Need to lift casing 11.8'
Will lift casing 12.0'.

1410 Extractor is attached. Begin to pull O-DEX casing.

Placing gravel pack as well is extracted. Using #2 washed gravel as sand pack.

1435 Completed pulling O-DEX casing 12.8'. Added 1 bag (100 lb) and 3/4 of a second bag of Sand Pack.

Bottom of O-DEX casing at 139.8' BLS

PVC casing settled to 0.7' BLS. Screen interval is
Top : 140.7' BLS
Bottom : 151.0' BLS

Top of Sand Pack is measured at 136.08' BLS.

Place Bentonite pellets and measure the top of the seal at 132.7'. Hydrate the bentonite seal w/ 10 gal.

1510 Complete setting 01-001 MW. Drillers begin to pick up around the site.

Begin to cut O-DEX casing at the land surface.

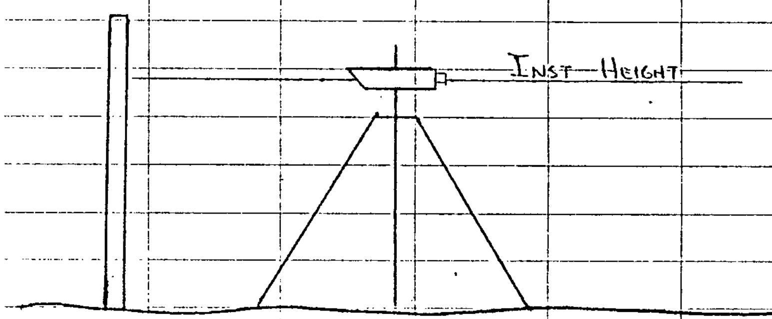
Attach flat air hammer on ODEX casing and hammer casing to 0.3' below land surface to set the flush mount cover over the well.

Drillers will grout hole and complete surface cover at a later time. Cut PVC casing to 0.5' above land surface. Cap well.

1600 Drillers continue to clean up at the site and move equipment to 03-001 MW location.

1730 Drillers moving Air Compressor and Drill pipe to 03-001 MW.

E.P. and M.H. prepare to survey the next drilling location



Benchmark : 202.07'

Rod : 5.04 Inst Height : 207.11'

Dry well (North)	6.78	200.33' AMSL
Dry well (South)	6.56	200.55' AMSL
High Water Mark	5.86	201.25' AMSL
03-001 MW	5.77	201.34' AMSL

1810 Drillers moved all equipment and are read to clean drill stems to drill on Monday. Begin to secure the site for the weekend.

1815 Drillers depart the site.

1815 E.P. and M.H. obtain w/L from
01-001 MW.

WL = 141.48
mp = 0.30
141.18' BLS

OR 63.29' ~~AES~~ AMSL

1820 E.P. and M.H. Depart the Site

5/6/94 9.5 hrs

Saturday DAY 31 5/7/94

No Work Related Activities

5/7/94 0.0 hrs

Sunday DAY 32 5/8/94

No Work Related Activities

Earl E Packard 5/8/94 0.0 hrs

Monday DAY 33 5/9/94

0810 E.P. and M.H. arrive at the Station.
E.P. calls Lee Perry (ANGRC/CEVR P.M.)
Informs him of completing 01-001 MW and beginning of 03-001 MW. He asks again if the well will also be down-gradient of the IRP Site No 3. It will not. IRP Site No 3 and the dry wells are across gradient from each other and the scope of the Work Plan states the Monitor Wells are installed specifically to investigate the dry wells. Therefore, the MW's are placed for that purpose.

MH. warms up the field GC.

0850 Drillers arrive at the site.
Decon drill pipe. Prepare lead-ODEX pipe with drill shoe and load drill pipe in O-DEX casing.

1015 Safety Briefing.
Emil Prokec John Byrnes
Mark Ikason Bill Fegro
Discuss usual safety considerations and new site Hazards. Discuss special concerns

of being cross-gradient of our
first set of dry wells and possible
contaminants we may encounter.
Emphasize the importance of shielding
drill cuttings.

1030 Prepare rods and hammer to drill
the first 10' interval 03-001 MW

1045 Begin to drill initial 10' interval
0'-5' Blacktop some road base material
and fill. VPS sand, silt, and
gravel. Mostly sand and gravel.
5'-10' Sand, silt and gravel. Mostly
and fine to medium sand and
gravel. Angular gravel and cobble.

1055 Complete 10' interval. Add next 15' interval

Weather: Clear to Partly Cloudy and
mild. Temp: 61 Hi: low 70's.
Clear to PC w/ light winds from
the southwest. Turn more cloudy
late in the afternoon.

1140 Begin to drill next 15' interval
Interval 10'-25' BLS
10'-15' Sand, silt, and gravel. Wet zone
of silty and clayey, silty sand
at 12' BLS. Becoming quickly
a dry silty sand w/ gravel.
15'-20' Sand, silt, and gravel. Medium
sand with gravel and silt.
20'-25' Sand, silt, and gravel. rounded
gravel. Mostly a silty fine to
medium sand.

1150 Complete drilling 15' interval. Begin to
attach next 15' interval.

1223 Begin to drill next 15' interval
Interval 25'-40' BLS
25'-30' Sand, silt, and gravel some
rock fragments initially. Mostly
a very poorly sorted sand, silt and
gravel.
30'-35' Fine to medium sand and gravel.
VPS sand, silt, and gravel.
Few rock fragments.

35'-40' VPS sand, med to fine sand. and gravel TO abundant rock fragments at 38' BGS. Mostly rock fragments and fine to medium sand. Abundant gravel.

1235 Complete drilling 15' interval
Break for lunch
Drillers begin to prepare next 15' interval for installation

1352 Ready to drill next 15' interval.
Interval 40-55' BGS
40'-45' Fine sand, clay and rock fragments and gravel. Mostly gravelly rock fragments and fine sand.
45'-50' Rock fragments, gravel, and fine sand Becomming a medium sand and gravel at 47' BGS. Mostly a medium sand with fine sand and gravel
50'-55' Fine to medium sand and gravel. Mostly fine and medium sand. Well rounded small gravel. No rock fragments.

1404 Complete drilling 15' Interval

1435 Complete welding next interval. Begin to drill 55'-70' BGS Interval.
55'-60' Medium sand, silt, and gravel
60'-65' Medium to fine sand and gravel. Becomming more medium sand and gravel. Few rock fragments.
65'-70' Medium to fine sand and gravel. Becomming more dark and silty. VPS sand, silt and gravel.

1448 Complete drilling the next 15' interval
Begin to attach next 15' interval.

1510 Begin to drill next 15' interval.
Interval 70'-85' BGS
70'-75' VPS Sand, silt, and gravel, some larger gravel.
75'-80' VPS sand, silt, and gravel. Dark brown and slightly moist. Mostly a sand, silt, and gravel.
80'-85' VPS sand, silt, and clay becomming more sandy near bottom w/ some rock fragments. Sand and gravel.

1522 Complete 15' Interval. Begin to attach next 15' interval.

1550 Begin to drill next 15' interval.
Interval 85'-100' BLS
85'-90' Medium to fine sand and gravel.
Few rock fragments. Mostly sand and gravel
90'-95' Medium to fine sand, gravel and
rock fragments. Gravelly sand w/ fragments
Mostly coarse sand to silt and gravel.
95-100' Sand, silt, and gravel UPS sand
and silt w/ gravel and few angular
large gravel and rock fragments.

1603 Complete 15' interval. Complete drilling
for the day. ~~Drillers begin to break down~~
~~and stow equipment for the day.~~
Drillers begin to attach the next 15'
interval.

1627 Begin to drill next 15' Interval
Interval 100'-115' BLS
100'-105' UPS sand, silt and gravel.
Mostly sand and gravel.
105'-110' Medium sand. Mostly medium sand
w/ some fine sand and gravel.
Mostly medium sand w/ steam
evident at 110' BLS

110'-115' Fine to medium sand and
gravel. Mostly medium sand with
rounded gravel. No evidence of steam
or water.

1642 Complete drilling 15' Interval. Complete
drilling for the day. Drillers begin to
breakdown and stow equipment for the day.

1655 E.P. and M.H. obtain Water Level from
01-001 MW
WL = 142.33
- 0.10 MP
142.23 BLS

1655 Drillers depart the site
E.P. and M.H. depart the site.

Earl E. Paul 5/9/94 8.5 hrs

TUESDAY DAY 34 10 May 94

0810 E.P. and M.H. Arrive at the Site.
E.P. prepares daily status report and sends to Lee Remy (ANCEC/CEVE PM)

0850 Drillers arrive at the site. Begin to prepare for drilling.

Safety Briefing:
Earl Porter
Mark Hensen
John Brevs
Bill Figero
Safety Review.
Weather: Clear to Partly Cloudy and Mild. Temp 64°. Hi - Mid 70's. Clear to P.C. w/ light winds from the S.W. at 5 to 10 MPH. Annular Eclipse at 1350 today.

0915 Drillers begin to weld on next pipe interval to drill string and M.H. Moves drill cuttings to the cuttings stockpile. Will be drumming aquifer cuttings to store in cuttings area to await analytical analysis on water.

0940 BEGIN TO DRILL NEXT 15' Interval
Interval 115'-130' BLS
115'-120' Fine to medium sand, moist and gravelly. Mostly a fine and medium sand. No steam.
120'-125' Medium sand w/ fine sand and gravel.
125'-130' Medium sand with fine sand and gravel. Slightly more gravelly near the bottom

0957 Complete drilling 15' interval. Adding next 15' interval.

1030 Begin to drill next 15' interval
Interval 130'-145' BLS
130'-135' Medium sand, fine and gravel. Mostly a moist medium sand and fine sand w/ gravel.
135'-140' Medium sand w/ fine sand and some gravel. Some steam evident.
140-145' Mostly a medium to fine sand and gravel. Moist sand and steam.

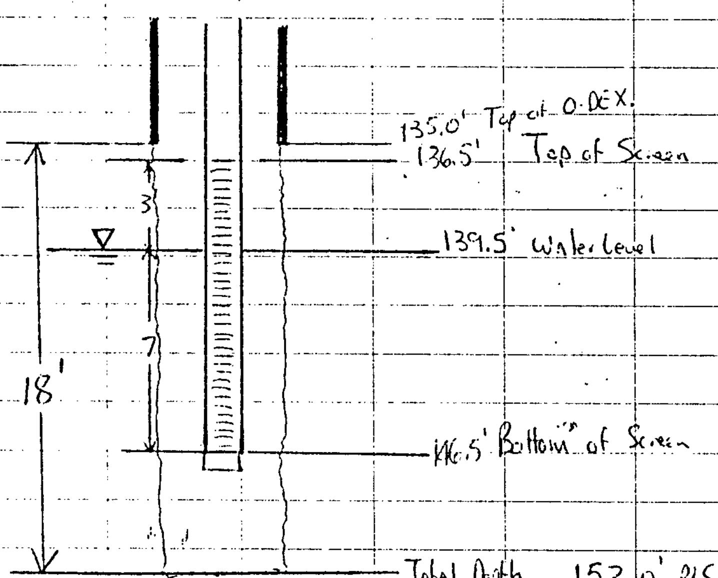
1055 End 15' interval.

Begin to attach next interval.

WL at PZ1 measured at 61.69' AMSL
on 4/28/93 ∴ at 139.65' BLS at
03-001 MW."

Assume WL at 03-001 MW = 139.5' BLS

Screened interval from 136.5' - 146.5'
Planned Settings:



Measured Screen and Casings

Screen		10.02
PVC Section	1	19.98
"	2	20.04
"	3	20.02
"	4	20.02
"	5	20.02
"	6	20.01
"	7	20.01
End Cap -		1.08
		151.20 ' Total Length

Total length from bottom of the screen
is (Tot) - (End Cap) =
or 151.20 - 1.08 = 150.1

Bottom of Screen at 146.5
Screen & PVC is 150.1

We want 3.6' of Screen above land surface.

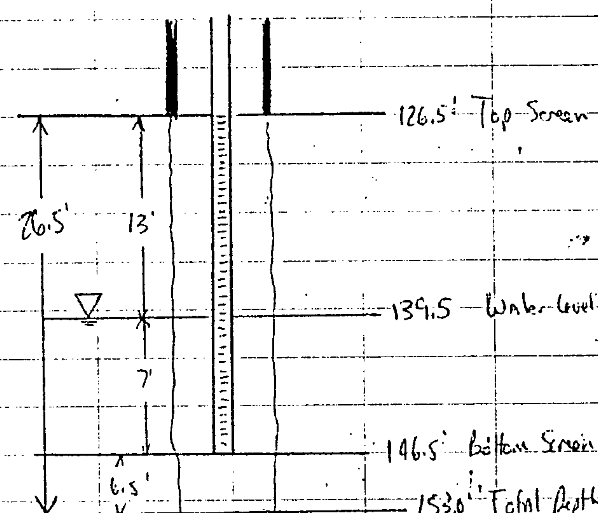
1135 Begin to drill next 10' interval.
Will only drill 8 feet.

145-150 Water out initially then a wet to moist medium sand, fine sand and gravel. Mostly a medium sand

150-153 Medium sand, fine sand and gravel Mostly a medium sand w/ some fine sand and rounded small gravel. Sksm.

1143 Complete drilling 8' interval

Adding additional screen due to the affects of the slowly recharging well near by. 10.02'



Well will have a 20' screened interval.

1150 Turn off air after blowing out hole for 5 minutes. Begin to add water to well to put positive head in well.

Begin to pull out drill rods.

1213 Complete pulling out drill rods. Turn water out of well.

Water on for 23 minutes at 1 gallon per 45 seconds ∴ approx 31 gallons in the well.

1220 Run split spoon sampler down the hole to obtain a sample from the aquifer material for field screening.
PID 0.0 PPM
Soil is a medium sand w/ some fine sand and few gravel.

1230 Begin to assemble and run PVC in the hole. E.P. and M.H. set PVC screens and end caps w/ Nitril Gloves.

Drillers using Nytril Gloves begin to assemble the PVC casings and run them down the hole.

1248 Complete running PVC screens and casing down the hole. Total casing set in the hole is 161.22'. End cap is 1.08' and 12.9' of casing above land surface.

∴ Bottom of screen is 147.24' BLS

Drillers break for lunch.

1335 Drillers begin to attach O-DEX extractor to casing.

Bottom of O-DEX casing = 153.0
Bottom of PVC Screen = 147.2"
Top of PVC Screen = 127.2

Must extract O-DEX casing to approx 127' therefore we must extract approximately 26' of O-DEX casing.

1410 Begin to extract O-DEX casing.

1417 Weld breaks on O-DEX casing and Air hammer after approximately 9 feet of extraction. Decide to cut the casing here and re-weld the extractor back on the O-DEX casing. Added ½ bag of #2 W.G. sand pack during well extraction.
Cut off 9.2' of O-DEX casing.

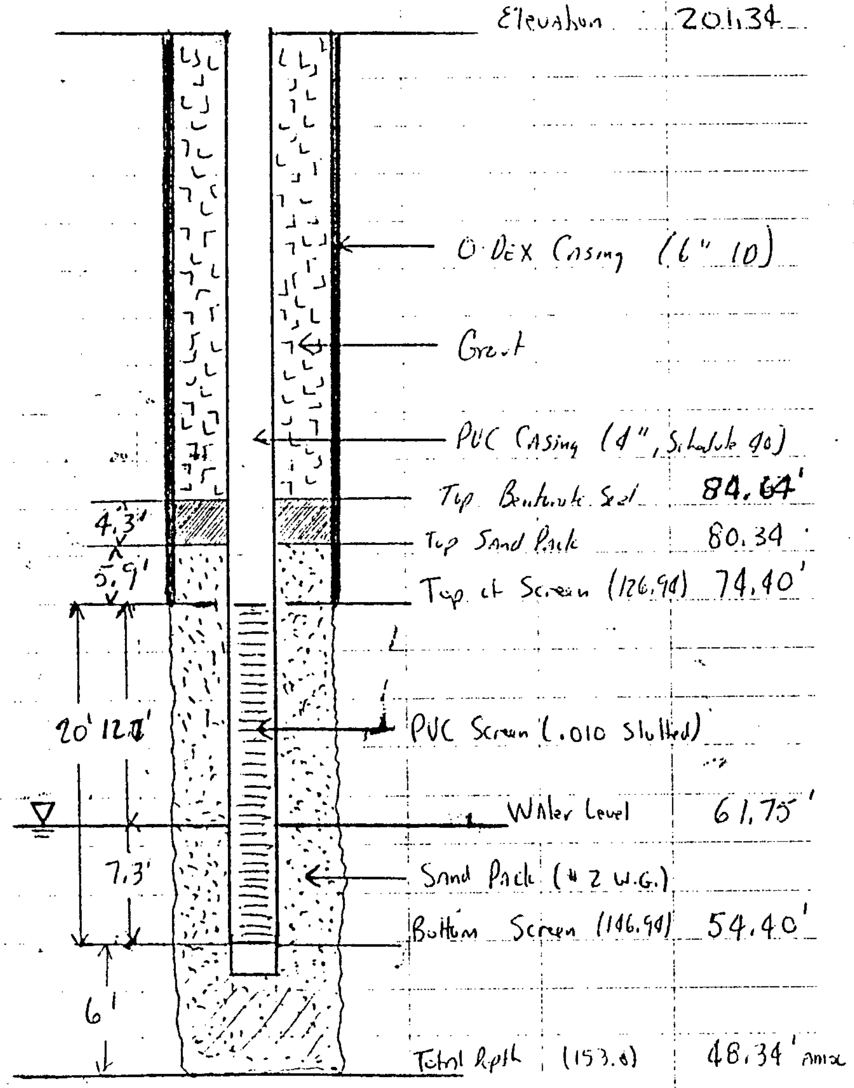
Therefore 153.0
− 9.2
143.8' with 1.0' above LS

So Bottom of O-DEX casing = 142.8' BLS

1423 Begin to re-weld extractor to O-DEX casing to continue to pull the casing to expose the screen.

1515 Complete welding and preparing to extract the O-DEX casing. Need to continue to lift O-DEX casing approx. 16 feet.

03-001 MW



1530 Begin to extract O-DEX casing. Measuring the top of the sand pack during extraction. Adding #2 W.G. as O-DEX is being lifted to insure the well is not locking up with the O-DEX casing as it is being extracted.

1620 Complete lifting O-DEX casing a total of approx 16 feet.

Cut O-DEX casing 17.8' removed.

142.8
- 14.8
128.0' with 2.9' above land surface

Bottom of O-DEX casing = 125.1' BLS

PVC casing now measures 13.2' above land surface after O-DEX extraction is complete. Therefore

160.14
- 13.20
146.94' BLS - Bottom of PVC Screen.

Sand pack top was measured at 121.0' BLS (80.34' AMSL)

Bentonite seal chips placed in the well and hydrated with 10 gallons of water. Top of the Bentonite seal was measured at 116.70' BLS (84.64' AMSL)

1655 Complete setting well. Begin to clean up equipment around the site.

1710 Drillers have secured the site preparing to depart.

E.P. and M.H. Seal - two 55-gallon DOT drums with all soil cuttings from 03-001 MW 130' BLS to TD (153.0' BLS). Drums of soil material from the aquifer will be stored with other soil cuttings to await groundwater analytical analysis. Drums will be labled and moved in the morning.

1715 Drillers depart the site.

1715 E.P. and M.H. obtain groundwater levels.

03-001 MW

WL = 139.99
0.40 MP
139.59' BLS

139.59' (201.34) 61.75' AMSC

01-001 MW

WL = 142.47
0.30
142.17

142.17 (204.47) 62.30' AMSC

1730 E.P. and M.H. depart the site

Earl E Parkhurst 5/10/94 9 hrs

40'-45' VPS Sand, silt, and gravel. Mostly a sandy gravel and few rock fragments.

45'-50' Medium to fine sandy gravel and rock fragments. Mostly large gravel and fragments.

50'-55' Mostly a dry fine sand w/ gravel.

1648 Complete Drilling 15' interval. Drillers begin to attach next 15' interval.

1702 Begin to drill next 15' interval.
Interval 55'-70' BLS

55'-60' Fine sand to sand, gravel and abundant rock fragments. Becomming more gravelly with rock fragments near the bottom.

60'-65' VPS sand, silt, and gravel with larger gravel and rock fragments. Becomming more sandy near bottom.

65-70' Medium to fine sand and gravel. Medium sand and gravel with some fine sands and few rock fragments. VPS sand and gravel.

Complete drilling 15' Interval

Drillers begin to secure the site for the day.

1730 Drillers depart the site

EP and MH obtain water levels

PS 3 142.80
1.50 MP
141.30' BLS (62.05)

PS 2 144.58
1.00 MP
143.58' BLS (62.42)

01-001 MW 142.25
~~0.20~~ MP 0.20 MP EP
142.05' BLS (62.42)

03-001 MW 139.82
0.40 MP
139.42' BLS (61.92)

1750 EP and M.H. Depart the Site.

[signature] 5/11/94 9 hrs

1258 Complete drilling the initial 10' interval.

Drillers organizing the O-DEX casing and drill pipe in a better position to feed it up into the hole.

Drillers performing additional maintenance on the drill rig.

1438 Drillers prepare the next 15' interval for drilling. Welding next O-DEX interval in place.

1455 Drillers begin to drill next 15' interval
Interval 10' - 25' BLS.
10'-15' Mostly gravel and rock fragments. Breaking through large rocks. Some fine to coarse sand. Mostly gravel and rock fragments.
15'-20' Sandy gravel and rock fragments. Mostly gravel and rock fragments becoming more sand near the bottom. Very coarse sand with silt and abundant gravel and rock fragments.

20-25' Medium to coarse sand and gravel some silt, gravel, and rock fragments. Mostly a medium sand w/ gravel.

1518 Complete drilling 15' interval. Begin to attach next 15' interval.

1545 Begin to drill next 15' interval.
Interval 25-40' BLS
25'-30' Medium to fine sand and gravel. Mostly a medium sand and gravel.
30'-35' Medium to fine sand with abundant gravel and few rock fragments. Becoming more gravelly and fragments.
35'-40' VPS sand, silt, and gravel with larger gravel and few rock fragments. Mostly a coarse sandy gravel and sand

1555 Complete 15' interval. Beginning to add next 15' of drill pipe and O-DEX casing.

1624 Complete attaching 15' interval. Begin to drill 40'-55' BLS interval.

WEDNESDAY DAY 35 11 May 94

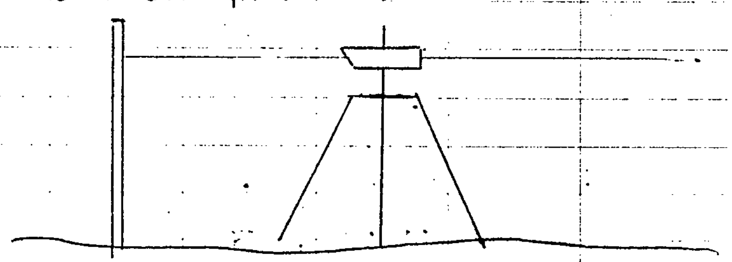
0810 Arrive at the Station.
E.P. prepare daily progress report and sends it to Lee Perry (ANGRC/CEVR PM).

0850 Drillers arrive at the site. Begin to prepare to move equipment to 02-001 MW.

E.P. and M.H. move drums of aquifer material to drum storage area north of the parking lot. We have 2 drums of aquifer material from 03-001 MW.

1025 Drillers begin to organize equipment around 02-001 MW. Delivery of drill pipe and PVC casing for monitor well are delivered.

E.P. and M.H. survey in the new monitor well drilling location



Benchmark Manhole cover ℄ at IRP Site No 1.
Elevation 201.57 Rod 8.79
Instrument HEIGHT : 210.36'

Reshot PS 3 Rod 7.03 203.33' ⟨203.35⟩

02-001 MW Rod 6.68 203.68'

1205 Call Joe Byrd at OpTech to return call. Arrange for him to come out on Sunday to complete the project.

1215 Break for lunch

1240 Return to site. Drillers are preparing to drill initial 10' interval.

1245 Begin to drill initial 10' interval
Interval 0-10' BLS
0'-5' Mostly an unsorted fill material and road base. Very poorly sorted sand, silt, and angular gravel.
5'-10' VPS sand, silt, and gravel with large angular rock fragments.

THURSDAY DAY 36 12 May 94

0810 E.P. and M.H. Arrive at the Station.
E.P. prepares and sends Daily progress report to Lee Remy (ANGRC/CEUR PM).

M.H. prepares field GC for operation.

0900 Drillers Arrive at the site. Begin to prepare for the days operations. Discuss Safety issues with chance of rain this morning, then E.P. and M.H. move drums of cuttings to the Station to dispose of.

0915 Drillers begin to attach next 15' interval to drill string.

0945 Begin to drill next 15' interval.
Interval 70-85' BLS
70'-75' VPS sand, silt, and larger gravel. Few rock fragments.
75'-80' VPS Sand, silt, and gravel. Medium to fine sand and larger gravel. Becomming more silty w/ clay, silt and fine sand.

80-85' VPS sand, silt and gravel w/ some clay and slight moisture to a more medium sand and gravel.

1005 Complete 15' interval. Begin to attach next 15' interval to drill string.

1034 Begin to drill next 15' interval.
Interval 85-100' BLS
85-90' Fine to medium sand and gravel. Mostly sand w/ gravel and few rock fragments.
90'-95' Fine to medium sand, gravel and some rock fragments. Mostly and sand and gravel.
95-100' Medium sand w/ gravel and few rock fragments. Mostly a sand medium to fine w/ gravel and some rock fragments.

1052 Complete drilling 15' interval. Prepare to attach next 15' interval.

WEATHER: Cloudy, mild w/ chance of rain today. Hi - 69° and drizzle. Winds out of the south from 5-15 mph.

Screen		10.05
PVC - Section	1	10.03
"	2	10.05
"	3	10.05
"	4	10.05
"	5	10.05
"	6	10.03
"	7	10.05
"	8	10.05
"	9	10.05
"	10	10.03
"	11	10.03
"	12	10.05
"	13	10.05
"	14	10.05
"	15	10.05
End Cap		0.50

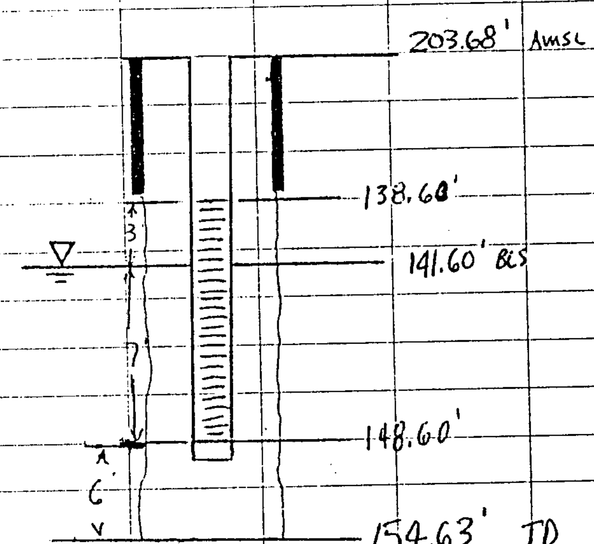
1133 Begin to drill next 15' interval
Interval 100' - 115' BLS
100'-105' Fine to medium sand, silt w/ some gravel, few rock fragments.
105'-110' Fine to medium sand, gravel and rock fragments. Abundant gravel and rock fragments w/ fine sand.
Coarse sand to medium sand, gravel and rock fragments

110'-115' Medium to fine sand w/ some coarse sand, gravel and few rock fragments. Mostly coarse sand to medium sand and gravel.

1150 Complete drilling 15' interval. Drillers preparing next 15' interval for drilling.

E.P. takes M.H. to hotel to depart Roslyn.

E.P. calculates target depth for PVC well and screens.



Total length of 10' screen plus all
15 Sections of 4" PVC is 160.72'

There fore for bottom of screen to be
At 149.63' BCS, there will be 11.1'
above land surface.

1220 Drillers complete Attaching next 15' interval
Begin to drill Interval 115'-130' BCS
115'-120' Sand, silt, and gravel. Mostly
A fine to medium sand and silt
w/ gravel and few rock fragments.
120'-125' Sand, silt and gravel. Medium to
fine sand w/ gravel and few rock
fragments.
125'-130' Medium sand w/ fine sand and
gravel. Mostly a medium sand
And gravel

1243 Complete drilling 15' interval
Drillers break for lunch.

1320 Drillers begin to weld next 15' section
onto drill string.

E.P. runs field GC analysis on soil
from 130' BCS interval.

Begin drilling next 15' interval
Interval 130'-145' BCS
130-135' Medium to fine sand w/ silt
And gravel. Mostly medium sand
And rounded gravel.
135'-140' Medium to fine sand and
gravel.
140'-145 Medium sand and gravel. Some
fine sand, mostly medium sand w/
some small rounded gravel. Sand
becomming moist with some steam
near very bottom.

1418 Complete 15' interval. Drillers attaching
last interval and will drill it 10' BCS
for a total depth of 155' BCS.

Skies becomming very dark. Thunder
storms may be moving into the
Area soon.

1420 EP takes 145' BLS sample and conducts field GC analysis. Moving in second sealable drum for cuttings from 02-001 MW. Drumming soil from 130' BLS to TD for drum storage area awaiting analytical results.

1430 Wind kicks up big and thunder and lightning in the area. Stop work and move away from the rig to see if rain will blow over.

1515 Rain is over and drillers go back to the rig and begin to weld last interval on the drill string.

1535 Begin to drill last 10' interval:
Interval 145' - 155' BLS
145-150 Medium sand, fine sand and gravel. Mostly a medium sand and gravel, wet sand and steam.
150-155 Sand, medium sand w/ some fine sand and gravel. Moist sand and steam. Sand, silt, and clay at the bottom.

1548 Completed drilling. TD at 155' BLS.

Obtain sample for field GC analysis from cuttings from 155' BLS.

Drillers blow out the hole. Fine sandy mud with gray clay comming from hole. Into the top of a silty clay.

1555 Drillers add water to hole as they shut the air off. Since we are in clay, we do not expect alot of sand heave at the hole so we will minimize the amount of water added to the hole.

Drillers begin to pull out drill string.

1603 Stop adding water. water flow at 1 gal / 36 seconds ∴ 14 gallons added to the well.

Drillers continue to extract drill pipe.

1615 Complete by pulling air hammer.
Prepare to run split spoon sampler
to obtain aquifer material sample.

1623 Run down spoon. Obtain aquifer material.
Mostly a fine sand, silt and clay
with light gray clay and brown sand
and silt.
PID (spoon opening) 0.0 PPM
Collected a sample for field GC.

1628 Begin to assemble PVC well.
EP and Bill don Laytex glooves and
assemble end cap and 10' screen
(4" ID, Schedule 40, 0.010 slotted).

Will add 15 additional sections of
approx 10' lengths (measured previously)
for a total PVC well string of 161.22'.

Subtract the end cap and the bottom
of the well screen is at 160.72'.

Will set the well at 148.6 to 138.6'
BLS for the screened interval.

Therefore, we will set the screen and
PVC casing with 12.1' remaining above
the land surface.

1642 Complete setting the well. It hangs
at 12.1' above land surface. Sounding
the total depth, there is 4.8' below
the bottom of the screens. The
clay prevented much sand heave in
the well. Cut 6.1' from PVC well.

Drillers are adding #2 Washed Gravel
sand pack to seat the bottom of the
well. Add 2.5 bags of (100 lb)
sand pack.

1655 Begin to attach O-DEX extractor
to O-DEX casing to begin the
process of extracting the O-DEX
casing.

Bottom of O-DEX casing	155'
Bottom of PVC Screen	148.6
Top of PVC Screen	138.6'

Must extract O-DEX casing 18'.

1735 Complete welding Extractor to O-DEX casing. Begin to extract the casing.

PVC well begins to settle, falling 2.2' with the begin of the extraction.

~~Shutt~~ Turn off air hammer and attach a line to the well to return it to optimum settings.

1745 Attach a line to the well and re-engage the O-DEX extractor and lift the well back to original elevations.

Adding #2 W.G. sand pack to stabilize the bottom of the well. Add 1/2 bag of gravel and well stabilizes.

Continuing to extract O-DEX casing.

Add 1 Bag of #2 WG as O-DEX is being extracted.

1838 Lift O-DEX casing to 14.8'. Must stop to cut casing and re-attach extractor.

1848 Remove 13.8' of O-DEX casing with a surface MP of 1.0'. Therefore
159' - 13.8' = 145.2' - 1.0' = 144.2'
Bottom of O-DEX casing at 144.2' BLS

PVC MP is 5.90 ∴ with a PVC string of 154.62 - 5.90, screen interval is 148.7 - 138.7' BLS

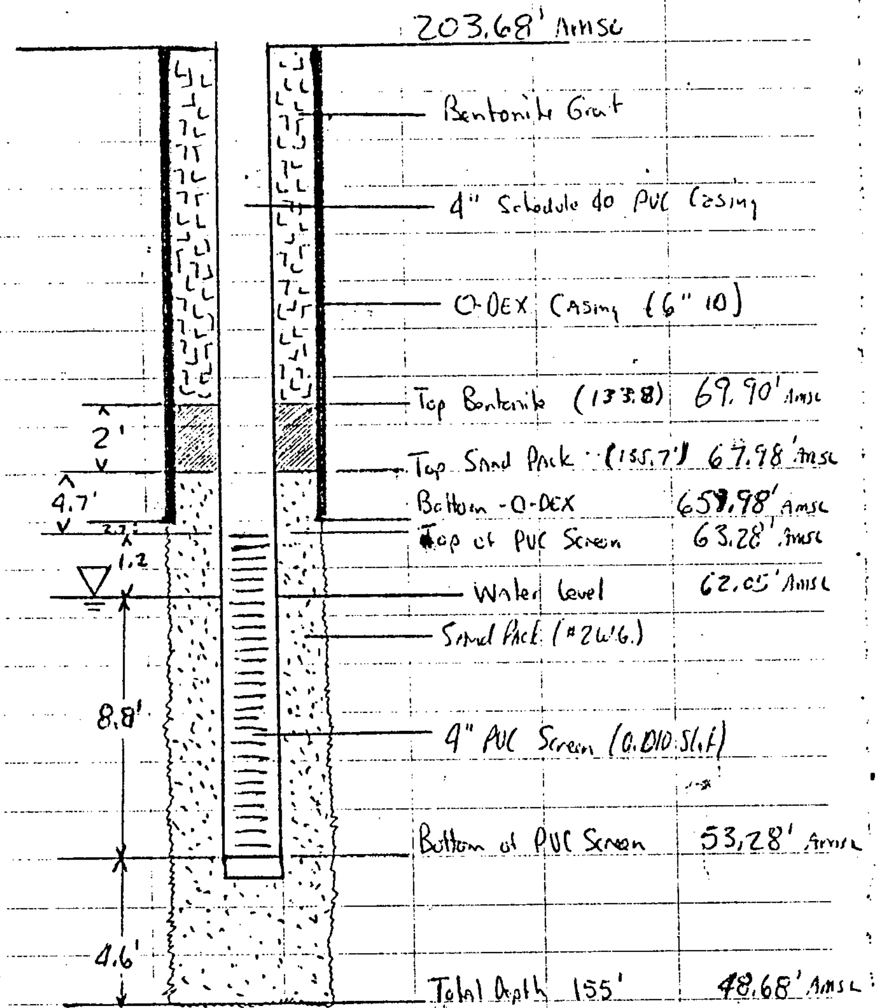
Gravel pack is sounded to be at 138' BLS. Will not need to add gravel during final O-DEX casing lifting.

Will lift casing an additional 7.5'.

1910 Complete attaching the O-DEX extractor to the casing to complete extraction. Begin to pull casing.

1930 Complete pulling O-DEX casing

02-001 MW



Approximately 7.5'

Drillers decide to bring out a steel saw to cut casing in the morning. We will quit for the day and cut O-DEX casing in the morning.

Drillers begin to secure the site for the day

1948 Drillers and E.P. depart the site

Eare E Park 5/12/94 10.3 hrs

FRIDAY DAY 37 13 May 94

0800 E.P. Arrives at the Site. Sends daily progress report to Lee Perry (ANCEC/CCUR).

0900 Drillers arrive at the Site.
Discuss daily activities. Make them aware of increased activity around the station today in preparation for the Stations drill weekend coming up.

Weather: Sunny and mild. Temp 61°.
Hi - Mid 70's. Sunny and breezy with South winds from 10-15 mph.

0915 Drillers begin to cut O-DEX casing to remove Extractor and complete activities at 02-001 MW.

0940 O-DEX extractor is removed. Measure current PVC MP.
PVC MP is 4.2' above land surface.
Therefore: PVC total length 154.62'
− 4.20'
Bottom of Screen. 150.42

Screened interval is
150.42' BLS TO 140.42' BLS
OR
53.3' AMSL TO 63.3' AMSL

Cut 7.5' from O-DEX casing. Top of O-DEX casing pushed to 0.3' BLS. Bottom of O-DEX casing at 137.7' BLS or at 65.98' AMSL.

Adding 3/4 bag of # 2 W.G. to sand pack. Sound top of sand pack at 135.7' BLS or at 67.98' AMSL.

Add Bentonite pellets ½ (100lbs) and hydrate w/ water. Top of Bentonite seal is 133.8' BLS or 69.90' AMSL.

1035 Complete well setting at 02-001 MW. Begin to mix grout to grout well to surface.

1110 Mixing Bentonite grout to tremie into the well. Mix 2 Bags of grout in mix tub and add to well.

1130 Mix another 2 bags of Bentonite grout and add to 02-001 MW.

Well takes ½ of the tub, Grouted to the surface. Look's like the well was successfully grouted.

Putting ½ tub of grout on a pallet to get Station personnel to get a forklift and move the tub to the next MW to grout (01-001 MW)

1145 Forklift operator at lunch. Drillers take lunch.

Begin to clean up at 02-001 MW. Driller cut PVC casing below land surface and place metal VAULT box by well for

installation. VAULT boxes will be installed and cemented at all wells on Monday after the grout has a chance to set up.

1240 Forklift operator moves grout to 01-001 MW. Drillers move rig and equipment to 01-001 MW to grout the well.

1255 Drillers tremie ½ tub of grout (1 Bag) into well. Begin to mix an additional bag.

1315 Begin to mix and grout 1 bag (½ tub) of grout to complete 01-001 MW.

Pour grout to just below surface. Grout to about 3' BLS, will move to grout 03-001 MW.

1330 Drillers moving rig and equipment to 03-001 MW to grout the well.

John Barnes (Jr) prepares to cut PVC casing at 01-001 MW below land surface while others move equipment to 03-001 MW and begin to mix grout.

Clean up around 01-001 MW as drillers move off.

1350 Drillers mix grout at 03-001 MW.

John Barnes cuts PVC at PS 2 below the land surface.

EP cleans up area around PS 2 and 01-001 MW.

1420 Drillers tremie 1 tub (2 bags) of Bentonite grout in 03-001 MW.

Begin to mix a second tub mixing 1 bag of grout (1/2 tub)

1455 Begin to tremie grout into 03-001 MW.

Fill the hole to the surface. Have some grout left over. E.P. and Bill take grout to 01-001 MW and PS-2 location to fill level of grout to the surface in these locations

1515 Drillers begin maintenance on rig and consolidate equipment.

E.P. moving empty sealable drums to the Monitor Well locations to be used to drum development water for well development on Monday.

Continue to clean-up at MW locations.

1610 Drillers complete cleaning up and securing equipment for the weekend. Drillers will complete surface completion (valve box and cementing) on Monday as well as well

development. Drillers prepare to depart the site.

1620 Drillers depart the site. E.P. finishes clean-up at the sites and securing the well heads for the weekend. Preparing to obtain water levels.

1630 Obtain water levels from all wells.

02-001 MW WL = 141.36
mp = + 0.20
141.56 (62.12)

PS 3. WL: 141.33
+ 0.20
141.53 (61.82)

1642 Attempt to obtain WL from 03-001 MW. Drillers cut the PVC casing below land surface and apparently allowed some grout to get inside the PVC casing.

unable to determine how much. Cannot look into well to see. Grout coats the side of the casing and makes probe stick trying to go down.

1655 After many attempts and cleaning the probe. Obtain a good water level. Does not appear grout is at the water. Probe is dirty from 25' BLS to 50' BLS approximately.

03-001 MW WL = 139.43
mp + 0.20
139.63 (61.71)

1703 01-001 MW WL = 141.84
+ 0.40
142.24 (62.23)

1708 Attempt to obtain WL from PS 2. Grout in the PVC well at ≈ 20' BLS will not permit probe to go down.

1720 Clean out van and pack equipment. Move to pay-phone to call John Munns (OpTech) to inform him of grout situation in 03-001 MW and PS 2.

1745 Depart the site to go to hotel to phone drillers concerning grout in the wells.

1800 Call Water Resources. No one in so I leave a message concerning the grout in the wells.

1815 Phone John Munns (OpTech). He states he will be stopping by Leslyn on Monday to meet with drillers concerning the Grout in the wells.

Earl E[illegible] 5/13/94 9.7 hrs

Saturday DAY 38 5/14/94

0810 Recieve a call from John Barnes Sr of Water Resources. He recieved my message and returned my call.

Discussed the grout situation at the wells.

I Believe grout got into 03-001 MW when the driller cut the PVC casing below the land surface ~~Abo~~ which was below the level of the grout. Once the cut was made, an undetermined amount of grout flowed down the inside of the casing.

PS 2 grout got inside the well when the driller was cutting that PVC below the land surface. I believe he attempted to break the uppermost PVC interval above the grout level (unscrew the upper section)

to cut it and replace it. However, he unscrewed an interval below the grout level. Once that seal was broken, some grout sprayed into the PVC casing before he screwed it back.

This grout is at an undetermined interval inside the casing but somewhere in the 25' BGS interval.

I informed John Barnes of our concerns that the wells may be damaged beyond repair and that John Morris would be at the site Monday afternoon and he should be there.

I will call Ed Palma of Big Apple Teching and inform him of the situation and he should also be at the site on Monday afternoon.

Pat Nasu (Land Surveyor) was not at the site on Friday so he will be out Monday or Tuesday to be lined out on survey requirements.

NyTest (laboratory) will have round 1 water sample kits ready for Monday.

Hermit, water tests (Slug test) equipment arrived today at the hotel for Tuesday (as scheduled) slug tests.

Spending the afternoon preparing paper work and reconsiling my expences so far for this trip.

5/14/94 6hrs

Sunday DAY 39 5/15/94

Pick up Joe Byrd at
La Guardia Airport at 05:30pm
to assist at the Roslyn SI

Eric E[illegible] 5/15/94

Monday DAY 40 5/16/94

0800 E.P. and Joe Byrd (JB) go to NyTest
and pick up sample kit for water
samples. Obtain 7 bottle sets for
water samples.
1) 01-001 MW
2) 02-001 MW
3) 03-001 MW
4) Base water sample
5) Equipment Blank
6) MS
7) MSD

0815 Obtain ice for sample preservation.

0830 Arrive at the Site. Inspect well locations.
All looks fine.
Attempt to obtain water level at
03-001 MW.

Tape goes down with absolutely no
problem. Obtain good water level
and tape comes up clean.
WL: 139.05 + 0.30 MP
139.35' bgs (61.99)
amsl

Moving to obtain water level at PS 2.

Tape goes down with absolutely no problem. Comes up clean. No grout.

PS 2

WL 143.03 (+0.00 MP) (62.57') AMSL

Move to 01-001 MW

WL 141.65 + 0.30 = 141.95 (62.52')

Move to PS 3

PS 3

WL 141.15 + 0.10 = 141.25 (62.10)

02-001 MW

141.18 + 0.20 = 141.38 (62.30)

0920 Go to office to call San Antonio to get John Morris arrival time for New York.

Send daily progress report to Lee Perry at ANCRC/CEVR.

0940 E.P. and J.B. go to 03-001 MW to run a bailer down the well to check condition of well and see if any grout is left in the well.

Drillers are at the site. Loading up equipment.

1020 John Barnes Jr moves pump to 01-001 MW to develop that one first.

Setting up pump and preparing 01-001 MW for development.

01-001 MW

WL = 62.52' AMSL

Bottom Screen = 53.50' AMSL

Well Volume = (0.0408) × (4")^2 × (9.02')

= 5.88 gallons

3 Well volumes = 17.7 gallons

Water added during construction = 32.5 gallons

Will develop at least 40 gallons. Pump and hose cleaned w/ DI water and methanol.

1125 Begin to lower pump into well. Lowering pump to 149' BLS (2.0' from bottom screen)

1140 Everything is set.
Calibrate Hydac PH using 7.0 and 10 pH Buffer Solutions

Begin to Develop

11:48:00 Turn pump on.

11:48:30	70°	2.89	10.30	Initial
11:53:00	60.2°	2.54	8.84	21.2 gal.
11:54:45	58.8°	2.61	8.51	31.8 gal
11:56:00	58.3°	2.55	8.08	37.1 gal
11:58:00	58.3°	2.51	8.10	42.4 gal
	T(F°)	Cond (x100)	pH	

Obtain water for picture.
Shut off pump after 44.5 gallons developed. Avg pump rate was 4.5 gal/min.
Temp in F° Fahrenheit
Cond is at (x 100)
Water cleared up well during development

WL at 12:08 is 141.98' BLS

11:50 Moving to 02-001 MW for development.
Pump and hose cleaned w/ DI water and Methanol
Lower pump into well and set at 148.5' BLS. Will develop at least 30 gallons.

12:19 Everything is set.
Calibrate Hydac Ph using 7.0 and 10 pH Buffer Solutions

Begin to Develop

12:20:00	68.6°	2.43	7.33	Initial
12:27:00	62.8°	2.42	7.65	21 gal
12:31:00	62.7°	2.43	7.37	31.8 gal
12:33:00	61.0°	2.44	6.90	37.1 gal
12:35:30	59.5°	2.45	6.55	42.4 gal
12:38:00	60.2°	2.45	6.73	53.0 gal
12:41:30	61.8°	2.56	6.61	63.6 gal

Shut off pump after 64 gallons developed.
Temp in F° Avg pump rate was 3.0 gal/min
Conductivity at (x 100)
Water cleared moderately during development
Continued to develop to get water as clear as possible.

1255 Moving to 03-001 MW. Pump and hose cleaned with DI water and Methanol. Lower pump into well. Setting pump at 145' BLS. Will develop at least 50 gallons.

1325 Everything is set
Calibrate Hydac using 7.0 pH and 10.0 pH buffer solutions.

BEGIN TO DEVELOP

13:29:30	73.1°	1.66	8.10	Initial
13:36:00	66.1°	1.37	7.33	21.2 gal
13:38:45	61.6°	1.28	7.12	31.8 gal
13:41:00	61.3°	1.26	6.88	42.4 gal
13:42:30	61.3°	1.24	6.95	47.7 gal
13:44:00	61.3°	1.24	6.90	53.0 gal
	(T)	(Cond)	(pH)	(Volume)

Shut off pump after 53 gallons developed.
Avg pump rate was 3.7 gallons/min.
Temp in Fahrenheit
Conductivity at (x 100)

Water cleared up very well during well development.

Drillers complete well development.
Decontaminate equipment and begin to clean up.

1410 Drillers begin to construct the flush surface mounts at the well heads.

E.P. and J.B. prepare to conduct round 1 of groundwater sampling.

Obtain groundwater levels from the Monitor wells to check for stabilization following development.

WL's

01-001 MW	144.97'	(62.50)	<-0.02'>
02-001 MW	141.39'	(62.29)	<+0.01'>
03-001 MW	139.88'	(62.96)	<-0.03'>

1425 Move to 01-001 MW to sample.
First bailer into drum.
Collect VOC, SVOC, TPHC, Cyanide, Pest/PCB, Metals in 7 bottle set.

1440 Move to decon Area and decon bailer.

John Mains (OpTech) at the Station. Talking to Ed Palma (Big Apple) to check progress of field work.

1510 Move over to 02-001 MW to collect Groundwater sample.

1530 Collect Groundwater samples. First bailer into development water drum. Collect VOC, SVOC, TPHC, Cyanide, Pest/PCB, Metals in 7 bottle set.

1548 move back to decon Area to clean bailer and prepare to collect sample from 03-001 MW.

1620 Begin to collect GW samples from 03-001 MW. First bailer into drum. Collect - VOC - SVOC - Pest/PCB - Cyanide, - TPHC, Metals in 7 Bottle set.

1640 Collect MS samples from 03-001 MW QA/QC MS sample collected for All compounds in 7 Bottle Set.

1700 Collect MSD samples from 03-001 MW QA/QC MSD sample collected for All compounds in 7 Bottle Set.

1720 Conclude sampling in Monitor wells. Decon bailer and collect the Equipment Blank (Rinseat Blank).

Collect for all compounds in the 7 Bottle set. Using lab provided De-Ionized water in a Bottle to Bottle transfer procedure.

1740 Collect Station water for analysis. Using valve on Bldg 17. (North side) Source of water during well construction. Collect Station water for analysis of all target compounds using 7 Bottle Set.

1755 Begin to prepare Chain-of-Custody and insure packing and accountability of all samples.

J.B and John Minns begin to pack equipment.

1820 Drillers complete flush mount on all well heads (3 MW and 2 PZ's).

E.P and J.B drive by all well heads to check the work.

1825 Depart the station to go to NYTEST to deliver samples.

1830 Transfer all water samples to NYTEST. Depart for Hotel

E. E. Pacheco 5/16/94 10.5 hrs

TUESDAY DAY 41 17 May 94

0800 Arrive at the Station.
E.P. calls Lee Perry to inform him on status and progress.
Prepares and faxes daily progress report to ANGRC/CEVR

J.B. prepares the Field GC for operation and begins to perform maintenance and clean-up on equipment to be shipped back today.

0900 E.P continues to consolidate information and compile project reports.

0920 Begin to organize equipment in van as to make place for the slug tests.

1100 Depart station to return Air tank to Air-Weld.

1140 Break for lunch.

1240 Return to Station. Begin to set up Hermit to conduct Rising Head slug tests.

Set up over 01-001 MW.

Conduct Set-up on HERMIT (Model SE 1000C)
Input Transducer data (From Transducer)
Quad Coef. Linearity Ø.Ø34
Scale 2Ø.Ø871
Offset Ø.Ø64

Program HERMIT w/ 100 Reference.

1330 Static water level: 142.27' BLS
Slug placed after transducer. Allow WL to fall back to static level.

Conduct rising head slug test after well had stabilized.

- Data did not look correct. Rechecking settings and test transducer.
- Had linearity scale as Ø.6Ø instead of Ø.Ø6.

Reset and conduct rising head slug test.

1417 Completed rising head slug test at 01-001 MW. Data looks good and all settings were correct. Water level returned to static level and was stable. Slug test run time was 10 minutes.

1435 Break down and move to 02-001 MW

1450 Setting up over 02-001 MW. Checking setting on HERMIT.

Obtain static water level: 141.62' BLS
Place transducer in well. Place slug in well and allowing WL to drop back to static level.

Conduct rising head slug test after well settled.

1520 Conduct slug test. Slug was not placed properly in the well. Will re-test the well. Check slug depth and allow the well to stabilize.

1545 Complete rising head slug test. Data looks good. Beginning to break down. Decon slug for next location.

Moving to 03-001 MW.

1610 Setting up to 03-001 MW. Obtain a water level at 03-001 MW. Static water level = 139.64' BLS

Place transducer and slug into well. Allow WL to move back to static water level before beginning test.

1618 Conduct rising head slug test.

Slug was not properly placed in water. Will re-configure well for another test.

1635 Test ready. Slug in water and well is stable. Run rising head slug test.

1652 Print test. The transducer was caught on the slug as it was pulled and affected the data. We will conduct another test but keep this data.

1710 Re-configure well for another test.

1715 Begin rising head slug test on 03-001 MW. Pull slug only enough to get it out of the water.

Data looks good. Complete testing the 3 monitor wells.

1740 Begin to pack up rental equipment to take it to FED-EX to send it back.

1755 DEPART STATION for FED-EX office.

1825 DEPART FED-EX Station to return to Hotel

[illegible signature] 5/17/94 9.5 hrs

WEDNESDAY DAY 43 18 May 94

0800 Depart Hotel and arrive at NITEST to pick up sample kit for the days sampling.

0815 Arrive at the Station.
Attempt to fax daily progress report to NAVFAC/CLEVR but the fax machine is down.

E.P. and J.B. go to the sites to prepare for 2nd round of sampling.

0830 John Barnes Jr. arrives at the site w/ submersible pump to purge the Monitor wells prior to sampling.

Begin to set up over 01-001MW to purge. E.P. and J.B. obtain a Water Level (01-001 MW)
WL = 142.20' BLS.
Obtain a WL from PS2
WL = 142.72' BLS.
Well Volume at 01-001MW =
$(0.0408) \times (4)^2 \times (8.8) = 5.7$ gallons

0900 Prepare to purge 01-001 MW.
Pump set at 149' BLS
Begin to pump. Will pump at least 18 gallons

09:14:30	55.3°	2.78	7.20	Initial
09:17:00	54.9°	2.69	7.13	10.6 gal
09:19:30	55.0°	3.18	7.05	15.9 gal
09:20:55	55.0°	3.18	6.95	21.2 gal
	T°	Cond	pH	

Purging Complete. Pump shut off after 21.2 gallons. Purge water was very clear.

T° = Temp in Fahrenheit
Cond = x 100
pH = Calibrated with 7 and 10 pH buffer solutions.

0930 Pull pump and decontaminate w/ DI water and Methanol. Move to next well, 02-001 MW

Obtain water level from 02-001 MW
WL = 141.58'

Volume of water in well is
$(0.0408) \times (4)^2 \times (8.82) = 5.8$ gallons

Will pump at least 17.3 gallons.
Set pump at 148.5' BLS

0935 Begin to develop 02-001 MW

09:36:30	57.3°	3.27	7.22	Initial
09:40:00	56.6°	2.90	7.27	10.6 gal
09:42:00	55.9°	2.75	7.05	15.9 gal
09:44:00	55.6°	2.78	6.73	21.2 gal.

Purging Complete. Shutt off pump after 21.2 gallons. Purge water was still only slightly silty following purging.

0950 Pull pump and decontaminate w/ DI water and methanol. Move to 03-001 MW.

Obtain Water Level from 03-001 MW
WL = 139.76' BLS

Volume of water in well is
$(0.0408) \times (4)^2 \times (7.18) = 4.69$

Will pump at least 14.1 gallons.
Set pump at 145' BLS.

1003 Begin to purge 03-001 MW

10:05:00	60.0°	1.66	8.30	Initial
10:08:00	57.3°	1.47	8.07	10.6 gal
10:09:30	57.0°	1.45	7.63	15.9 gal
10:12:00	56.5°	1.43	7.53	21.2 gal

Purging complete, shut off pump after 21.2 gallons. Purge water is very clear after purging.

1015 Driller is picking up pump. EP and J.B. prepare to sample wells.

1030 Sample at 01-001 MW
WL = 142.20'
Obtain water for analytical analysis
1st Bailer into purge drum.
Obtain water for VOC, SVOC, TPHC, Metals, Cyanide, and Pest/PCBs.

1130 Sample at 02-001 MW
WL = 141.59' BLS

Conduct water sampling for VOC, SVOC, TPHC, Metals, Cyanide, Pest/PCBs.

1230 Obtain Water Samples from 03-001 MW
WL = 139.72' BLS

Complete water sampling.
E.P. and J.B. close up drums at the wells and go to pack the Box of supplies for shipment.

1300 E.P. goes to NYTEST to turn in water samples and relinquish custody of samples.

1340 Moving company arrives to take Equipment Boxes.

1400 E.P. briefs Station Facility Manager on end of project. Gives keys to wells and provides Outbrief.

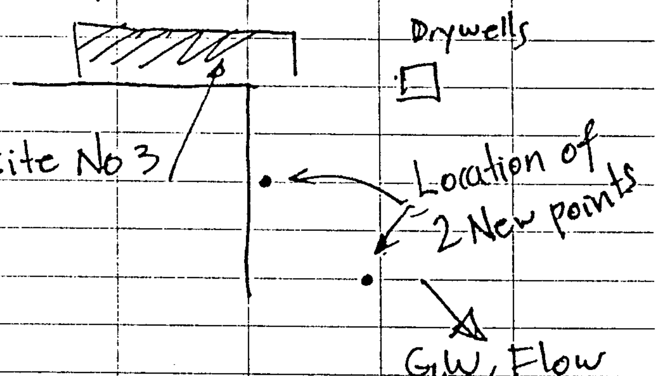
1430 E.P. and J.B. depart the Station
Check out of Hotel. Return Rental Van and Depart New York

Arrive in SA. End Project
5/18/94

Sept 13 / TUE DAY / 43

07:25 JA ~~Target~~ Tracer Arrived to the Base. Tracer personel setting up to start (finoup) soil Gas at site No. 1

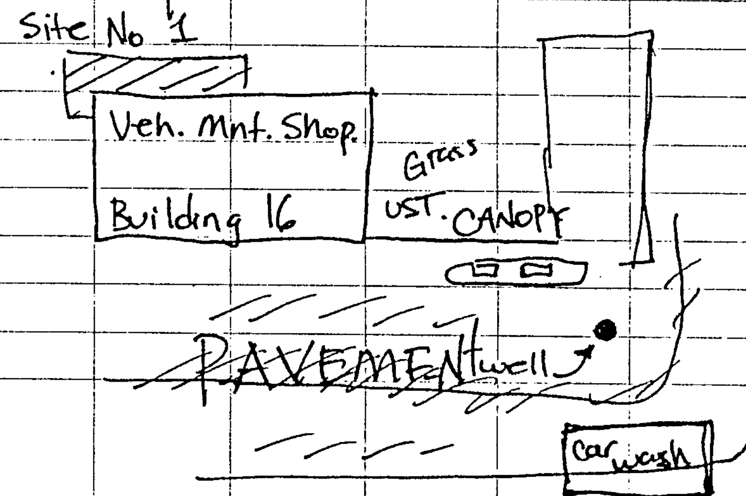
7:30 Earl, Myrna and I went to site No 3 to stake 2 more Soil Gas points.
GA ~~Doe~~ We are moving 2 points from site No 1 to site No 3, due to the fact that No.1 is very clean, and there was a low hit in the side of No.3



7:45 (JA) I am going to the Base CE office to request Capt. Johnson to move some cars and equipmnt for us, so that Tracer can install ~~their~~ soil gas Survey points in site 2 and the two additional ones in site 3.

7:50 Checking with Base personnel what equipment needs to be moved in both sites.

8:05 EP, MR, and JA will go to take water level measurements at a well next to the UST ~~of~~ Gas canopy next to the Vehicle Mntc. Shop.



8:15 The depth to groundwater was determined to be at 19.54 ft. No odors were detected coming out from the well. Water could be seen with a mirror from the surface.

8:30 MR and JA start working on HRS. JA also checking on the Soil Gas survey. EP leaves to the Lab to arrange things for the Lab analysis of samples.

10:55 Point 21 of site 1 of the Soil Gas Survey is moved 1 ft to the south because
(TRACER) they were not able to drill the pipe in. Maybe there was a boulder on the ground.

11:05 JA and MR noticed that another ARMY ~~portable~~ generator needs to be moved, so TRACER can install Gas point No 10 at site Number 3. JA will request Base personnel to move the generator.

11:15 Tracer personnel takes break for LUNCH. EP. comes back to the Base.

11:45 Break for Lunch

12:15 Back from Lunch.

½ hour

13:10 JA leaves the site to pick up Zero Grade Air for GC.

15:45 JA got Back to the Base. Target personnel is working at site No 2. No major hits were detected at this site so far. They installed 5 points at site No. 2.

The two points that were moved from Site No 1 to Site No 3 did not presented any hits. No major concentrations or no significant hits were encountered

Site No 1 was finished Today. ~~Traacer~~ Tracer installed 17 points at this site today. Nothing significant was found at this site either.

15:50 EP, MR, JA ~~d~~ determining the exact location of the points installed today at each site. The distance between points was measured with a Tape.

15:00 ~~Tagg~~ GA Tracer personnel starts wrapping up for the day.

16:35 JA, EP, MR Left the Base

JA JA JA JA

Sept 15 / Wednesday / 1993

07:35 JA arrives to the Base. Tracer is setting up to start soil gas survey at site No.2

07:50 JA, EP, MR start locating the points where ~~the~~ soil borings and monitoring wells will be installed at ~~each~~ sites (1 and 3)

08:45 JA, EP, MR finished flaging MW's and boring locations. They will proceed to take the depth to groundwater at the well close to Building 16. (Next to the UST's).

08:55 The depth to groundwater was 19.~~54~~' 73'.

09:10 JA and EP leave the Base to pick up Methanol for deconing

09:35 JA and EP get Back to the base

10:10 JA, EP, and MR start to determine the location of soil gas points at site No. 2. Soil borings and water well locations ~~where~~ at the site were also staked JA for future installation

12:15 JA and MR leave the Base for lunch.

12:45 JA and MR ~~get~~ get back to the Base.

14:00 Adolphia Co. Delivers the drums for cuttings and wastewater

14:10 MR Leaves site to work on HRS

14:15 Soil Mechanics arrives to Base: EP and JA and Soil Mechanics personel go over the locations on soil borings, wells, and piezometers to be installed at each site. ~~All~~ locations look ok to Soil Mech.

15:00 Soil Mechanics leaves the Base

15:05 JA and EP meet with captain Johnson. EP explains how things are developing.

JA

17:45 JA & EP leave Base.

JA

JA

JA

Sept 16 / THURSDAY / 1993

8:30 JA arrive to Base. MR & EP already there. It is raining and we cannot drill. We will wait a while.

IN-SITU, INC.
1-800-446-7488 (Bill McCleary)
Call on 11 April
HERMIT 1000C

CALL Lab in New YORK
ORDER BTEX Calibrant
w/ MTBE.

- Called 29 March. They said they would call back
- "No" on CALIBRANT, "Yes" on DI WATER

0700 (CST) leave house for airport

1700 (EST) at hotel in Roslyn

[signature] JR

DAY 1

(1)

April 6 Wednesday

0800 Leave hotel

0815 at Station

Inventory supplies

0845 Go check sites

0915 Meet w/ Capt. Johnson

1000 Mark sites for Tomorrow

1115 Leave base. Go to Lab.

1130 At Lab

1245 Leave Lab lunch

1330 Go to Air place

1530 Back at Hotel

DAY 2

3

Thursday April 7

0730 Pack up equipment & Leave hotel

0745 On base.
Set-up GC Room

Decon Sleeves & Caps

Drill crew arrives

0930 Set up field Decon area

Begin DRILLING
(02-003 BH, 01-002 BH, 03-005, BG-001 BH).

1430 DRILLING ENDS
PREPARE Field, Equipment Blanks

1510 MARK BARRELS. Pack Van
Labeled ALL Four barrels

Joe Boyd Jr 6.75

1550 leave BASE. Goto Lab
to drop off samples

1630 Back at hotel

Joe Byrd JR

Day 3

Friday 8 April

0900 Leave hotel
0915 at Base

Police Area

Site out & Mark PZ sites
& Monitor wells.

Meet with drillers &
walk out sites.

1215 Leave base
1230 At hotel for lunch

1445 leave hotel

1455 On Base

Close up For weekend

1600 Leave base

at Hotel

3.5
1.3
4.8

Joe Byrd JR | 4.8

Day 6

7

Monday April 11

0830 Leave hotel
0845 On BASE

Check out survey equip and run elevations on sites

Decon VOA Vials

1220 Leave base
Go to Lunch

1400 Leave hotel
1415 On base

Deconning VOA Vials

1618 Leave base

1630 At hotel

8 hrs
Driller's Delay

Day 8

Wednesday 13 April

0730 Leave hotel
0740 Onsbes
Return to hotel for BTEX Std.

0800 On base
Prep. for drillers arrival

0900 DRILLER ARRIVES. NO CREW with him. They show

Decon drill equipm

1120 Leave base get lunch

1200 Back on base
1220 Set up rig on hole

1230 Safety mtg. EP, JB[rml], JB, JB, WF.
1240 Spud in

Get Fork lift operator & dump drums that the have tested clean.

1400 Drillers stop drilling

Must make adjustment to bit.
They leave site with bit.
Will be back tomorrow AM

1412 Take soil samples from cuttings and run through GC to determine if soil is clean or not.

Dump barrels of soil. They Tested clean

Leave base

1530 At hotel

1540 CALL INSitu to order HERMIT 1000C

1550 ~~1600~~ Done with CALL

7.7

DAY 9

(11)

Thursday 14 April

0730 Leave hotel
0745 On base

Prepare for drillers arrival
Waiting on Drillers

0810 Driller arrives. He doesn't have Right equipment. Leaves
0830 site to go back to yard

1000 DRILL crew arrives. Begin drlg. preparations.

1005 Begin running equipment back into hole

1035 Hit bottom of hole. No progress Abandon hole. Move 20' & begin new hole

1045 Start on new hole

1130 Hit hard at ±70'. Pull out & move to 3rd location on same site. Will use smaller augers

1200 Lunch

1240 Back on base

Driller spud in on new hole

1400 Test Oil-Water interface Probe. Does not work. Will probably send back to HAZCO.

1430 Rig breaks down. Blows pop-off valve on hydraulic system.

Rig at end of run on this site. Will gear up for ODEC Rig for tomorrow.

Rig down. Police area. Cover holes. Discuss plans for tomorrow.

1545 Drillers leave site

1600 At hotel

Joe Byrd Jr

FRIDAY APRIL 15

0740 Leave hotel
0750 ON BASE

Prepare for drillers arrival

0900 JB is taught GC Basics by ME

1000 Go to DRILL site to AWAIT DRILLERS

1030 NO drillers.
Begin to Learn GC with ME As instructor.

121[illegible] Break for lunch

1254 Back Learning GC.

1345 Drillers Arrive. WOW!!
They begin unloading equipment

1430 Close up & pack GC. Go watch DRILLERS prep Rig.

1550 Leave base
1600 At hotel

DAY 13

(17)

Monday 18 April

0745 Leave hotel

0800 ON BASE

Set up GC. Since ME has returned to SATX, I will be GC operator.

0810 BTEX STD is at hotel. Will wait until driller arrives to determine if it will be needed. This bunch does not lead to optimism.

0815 PROGRAM GC.

But FLOW Adjustment (RED) knob does not work.

0910 CALL HAZCO. Determine that unit will be exchanged. Pack up equipment.

1130 DRILLERS ARRIVE. Begin working on Rig conversion to ODEC.

1145 I go to Fedex to drop off GC. EP stays with drillers to keep eye on them.

[redacted]

FEDEX didn't have haz-mat forms. Will return later

1245 Lunch

1315 Return to base.

Drillers equipment has been delivered. Still preparing for drilling.

1430 Still waiting for air compressor to begin drilling.

1500 No compressor. Drill crew leaves

We wait for Jeff (owner of Big Apple) to arrive for conference

1530 Jeff arrives

We discuss situation

1606 Leave base

1615 At hotel
Realize we still need to drop off GC.

Goto FEDEX

1730 Back at hotel

Joe Byrd Jr

9.3

Day 14

(21)

Tuesday 19 April

0800 Leave hotel

0810 At base. Leave EP to wait for Drill crew. I goto FEDEX, because GC was not shipped last night.

0915 Back at base. Waiting on Air Compressor to start drilling

0920 Compressor arrives. Begin prep. for drilling

0940 SPUD in with ODEC.

1010 CALL Hotel. New GC is in. Goto hotel.

1030 Back at base Set up GC.

1050 GAS FLOW ~~REX~~ 12 mL/MIN

~~Test~~

1053 TEST
Field 30
Power 25
ALL events 0.0 0.0

<Enter> VALUES

1055 TEST
Field: 30
Power: 25

SAMPLE	8.0	10.0
CAL	0.0	0.0
Event 3	0.0	100.0
EVENT 4	0.0	0.0
EVENT 5	0.0	0.0
EVENT 6	0.0	0.0
EVENT 7	0.0	0.0
EVENT 8	0.0	0.0

GAIN 2
Windo ±10%
CHART 0.5 cm/min

Set: J Byrd JR.
Roslyn ANGS

1100 PREPARE BTEX STD.
Must go to hotel to get STD.

NO. The compressor has Quit running. CREW is TRYING to get it running again.

1210 Compressor is Running
1215 " " Out

DRILLERS CALL REPAIRMAN.

1240 Lunch
1310 Go to hotel & get BTEX
1330 ON BASE

Compressor Mechanic is here & working on unit.

1345 Compressor is up & Running. Start Drilling Again.

1410 Go to Room to Calibrate GC & make BTEX STD

BTEX STD : 10 ml H_2O DI
5 µl BTEX
5 µl MTBE

1430 Shoot BTEX (MTBE) STD #1
FLOW RATE 12 ml/min

Analysis #1 J Byrd JR
Int. Temp 27 Roslyn ANGS
Gain 2 BTEX STD

NAME	PEAK	R.T.	AREA/PPM
UNK	1	30.8	844.9
UNK	2	49.1	1.3
UNK	3	74.3	4.9
UNK	4	112.6	211.0
UNK	5	143.3	4.3
UNK	6	303.4	10.7

1442 Shoot BTEX STD #2

Analysis # 2 J Byrd JR
Int. Temp 27 Roslyn ANGS
Gain 2 BTEX STD

NAME	PEAK	R.T.	AREA/PPM
UNK	1	30.8	766.3
UNK	2	49.1	716.3
UNK	3	74.1	2.5
UNK	4	117.4	139.6
UNK	5	143.3	1.6
UNK	6	303.4	3.6

1503 Shoot BTEX STD #3

Analysis #3 J BYRD JR
Int. Temp 28 Roslyn ANGS
Gain 2 BTEX STD

MTBE	1		3.339 PPM
BENZENE	2		2.173 PPM
TOLUENE	3		1.861 PPM
E. BENZENE	4		2.539 PPM
mp XYLENE	5		2.028 PPM
O XYLENE	6		1.975 PPM

1510 CLEAR LIBRARY

1515 AIR BLANK

ANALYSIS #4 — Joe Byrd, JR
INT. TEMP 28 — Roslyn ANGS
GAIN 2 — AIR

UNK	1	30.8	731.1
UNK	2	74.1	29.0
UNK	3	118.2	48.3
UNK	4	143.3	72.5
UNK	5	303.4	470.5

1523 BTXE STD

ANALYSIS # 5 — Joe Byrd, JR
INT. TEMP 28 — Roslyn ANGS
GAIN 2 — BTEX STD

UNK	1		1.0
~~UNK~~ MTBE	2		1.0
~~UNK~~ BENZ	3		3.9
~~UNK EBENZ~~ TOLU	4		223.0
~~UNK~~ EBENZ	5		3.3
~~UNK~~ MPXYL	6		7.2

1536 BTEX STD

ANALYSIS # 6 — J. BYRD, JR
INT. TEMP 28 — Roslyn ANGS
GAIN 2 — BTEX STD

UNK	1		1.3
MTBE	2		1,218 ppm
BENZENE	3		1,056 ppm
TOLUENE	4		993.7 ppb
ETHYL benzene	5		1,048 ppm
MP XYLENE	6		1,102 ppm

RENAMED LIBRARY

ANALYSIS #6 — J B JR
INT. TEMP 28 — Roslyn ANGS
GAIN 2 — BTEX STD

MTBE	1		1,000 ppb
BENZENE	2		1.0 ppm
TOLUENE	3		1,000 ppb
ETHYLBENZENE	4		1,000 ppb
MP XYLENE	5		1,000 ppb
O XYLENE	6		1,00 ppm

1554 Shoot BTEX STD

Analysis # 7
INT. TEMP 28
GAIN 2

		BTEX STD	
MTBE	1		415.0 ppb
BENZENE	2		832.7 ppb
TOLUENE	3		1,021 ppM
Eythylbenzene	4		985.4 ppb
MP XYLENE	5		1,067 ppM
O XYLENE	6		990.4 ppb

CALibrate to Peak #2, Benzene
1,000 ppm

1606 Go to Rig
TALK to EP about
Fine tuning GC

1618 Reduce AirFlow to 8 ml/min
INCREASE Analysis Time to 500 sec.

1622 Shoot BTEX STD

Analysis # 8
INT. TEMP 28
GAIN 2

			BTEX STD
UNK	1	41.5	10.4
Toluene	2	70.6	412.2 ppb
Ethylbenzene	3	111.6	26.31 ppm
UNK	4	217.9	3.9

1633 Shoot BTEX STD

Analysis # 9
INT. TEMP 28
GAIN 2

			BTEX STD
UNK	1	41.0	7.8
Toluene	2	70.6	930.4 ppb
Ethylbenzene	3	110.7	37.8 ppm
UNK	4	217.9	3.7

1644 INCREASE AIR FLOW to 15 ml/min
Reduce Analysis Time to 400 sec

1649 Shoot BTEX STD

Analysis # 10
INT. Temp 28
GAIN 2

		BTEX	STD
MTBE	1		441.6 ppb
MTBE	2		661.2 ppb
BENZENE	3		1.994 ppm
TOLUENE	4		1.614 ppm
ETHYL benzene	5		794.2 ppb
MP XYLENE	6		1.424 ppm
O XYLENE	7		1.366 ppm

Shut down GC
Go to Rig

1712 DRILLERS having trouble with pipe. ODEC has not been drilling very well.
HELP DRILLERS with Rig RepAIRS.

AIR VENTS ON THE BOTTOM OF THE BIT WERE clogged with clAY.

1838 Pipe back in hole.
Ready to restart drilling

1900 Get joint down. At 40' BLS. Weld on next piece of casing.

1930 Begin drilling again

1940 Have this joint down.
Set at 50'
DRLS. go home

2000 At Hotel

Joe Byrd Jr

11.5

DAY 15

Wednesday 20 April

0745 Leave hotel
0800 On BASE
Set up GC.
MAKE BTEX STD.

AIR FLOW: 13 ml/min

BTEX (MTBE) Std: 10 ml H_2O
5 µl BTEX
5 µl MTBE

0830 Calibration. Shoot BTEX STD

Analysis #	1	J BYRD JR
INT. Temp	22	Roslyn ANGS
GAIN	2	CALIBRATION

MTBE	1		1,198 ppm
Benzene	2		803.5 ppb
Toluene	3		991.4 ppb
Ethylbenzene	4		461.4 ppb
mp XYLENE	5		806.7 ppb
O XYLENE	~~6~~7		675.4 ppb

CLEAR LIBRARY

0840 Calibration BTEX STD

Analysis # 2 — J Byrd JR
INT. TEMP 23 — Roslyn ANGS
GAIN 2 — CALIBRATION

UNK	1		1.0
UNK	2		927.3
UNK	3		4.2
UNK	4		114.7
UNK	5		3.3
UNK	6		6.8

0850 Change AIR Flow to 10ml/min and Analysis Time to 500 sec.

I WANT TO TRY TO SEPARATE EthylBenzene & MP XLYENE Peaks

0854 CALibration BTEX STD

ANALYSIS # 3 — J. BYRD JR
INT. TEMP 23 — ROSLYN ANGS
GAIN 2 — CALIBRATION

UNK	1		3.1
UNK	2		1.0
UNK	3		3.1
UNK	4		1.3
UNK	5		3.4

0903 Change AIR FLOW to 14 ml/min and Analysis Time To 400 sec.

0909 CALibration BTEX STD

ANALYSIS # 4
INT TEMP 24
GAIN 2 — CALIBRATION

UNK	1		4.0
UNK	2		506.7
UNK	3		1.2
UNK	4		699.8
UNK	5		2.1
UNK	7		527.8

(11)

9/17/93

0700 EP+MR ON SITE, WAITING FOR DRILLERS

0710 JA ON SITE

0745 DRILLERS ON SITE
ITS RAINING HARD, NEED TO DECIDE WHAT WE'RE GOING TO DO

0815 WATCH DRILLERS REMOVE AGARS (JA, MR)

[illegible] EP DECIDED [illegible] DRILLING AS FAR AS THE EQUIPMENT WILL ALLOW, JA+MR WATCHING THE DRILLING

0940 EP FOUND OUT H_2O LEVEL IS AT 140 FT (57' ABOVE SEA LEVEL), WE ARE NOT DRILLING ANY FURTHER, DRILLERS CAN'T DRILL THAT DEEP, DRILLERS ARE TAKING OUT THE AGARS

(12)

1000 GROUTING BEGAN

(13)

9/20/93

0645 EP+MR ON SITE
0705 DRILLERS ON SITE
MARK, ROBERT
0715 DECON SETUP

0820 SAFETY BRIEFING
0830 BEGIN DRILLING

1230 LUNCH
1245 DECON
1500 PUT THINGS AWAY,
DO CHAIN OF CUSTODY

1630 MR, JA, EP OFFSITE

Myrna Rodriguez 9/20/93

MR does
2030 HRS WORK
2130 HRS WORK FINISHED

10.5 HRS

9/21/93

0700 EP+MR ON SITE
0715 DRILLERS ARRIVE
0720 SETUP DECON

~~0900 STAKE OUT PTS FOR SURVEYORS~~

0730 DECON TIME

1500 JA, MR, EP OFFSITE, GO TO
LAB
1545 LEAVE LAB

Myrna Rodriguez 9/21/93

9 HRS

9/22/93

0800 MR DOING HRS WORK

1030 MR ON SITE

1045 MR OFFSITE TO
PICK UP JA, MORE
HRS PHONE CALLS

1130 LUNCH

1230 ON SITE (MR, JA, EP)
SETUP FOR
HAND AUGERS

1330 DECON

1430 MR OFFSITE, GOES TO
LAB FOR SOIL
CONTAINERS

1530 MR ON SITE

1700 JA, MR, EP OFFSITE

8HRS Myrna Rodriguez

9/23/93

0930 JA + MR ON SITE

1000 CAPT JOHNSON ON SITE
SPOKE ABOUT WHAT IS
BEING DONE TODAY

1115 PICKED UP POLE DIGGER

1130 DECON

1745 JA, MR, EP OFFSITE

1815 LEAVE LAB

9HRS Myrna Rodriguez

9/24/93

0800 JA+MR ON SITE, WAITING
FOR GROUTING CREW

0815 DRILLERS ARRIVE

0920 DRILLERS OFFSITE

CLEANUP TIME

1145 JA, EP, MR OFFSITE

1230 JA, EP, MR ON SITE

1240 JA, EP, MR OFF SITE

MR GOES TO LIBRARY
FOR HRS

1800 MR BACK FROM LIBRARY

Myrna Rodriguez 9/24/93
9 HRS

INVENTORY

YELLOW BOOKS	3
SHARPIES	7
STAETLER	5

9/25/93

1400 MR + JA GO TO
LIBRARY FOR HRS
WORK

1500 LEAVE LIBRARY

1800 MR + JA WORK ON GC

1900 STOP GC WORK

2 HRS Myrna Rodriguez

9/27/93

0800 MR, EP, JA ON SITE
MR + JA TALKED TO AARONS
ABOUT BENCH MARK LOCATION
ON BASE, THERE IS NONE

0835 MET WITH SURVEYOR,
WALKED W HIM + SHOWED
HIM PTS (BH + SGS)

0920 SURVEYOR OFFSIDE

0950 EP, MR, JA OFFSIDE

0920 Go to drillsite to see if there is a 10µl syringe in VAN

0930 ~~Back~~ No Syringe
CALL M.E. in SATX
So that he can send us some

0945 DONE on phone with ME

BASE MAINTANENCE personnel ARE using Alot of mowers & blowers & other equipment whose exhaust in very heavy in this ROOM.
Am discontinuing GC CALIBRATION until LATER when ~~that~~ the AIR will hopefully be cleaner

0950 At Rig
Drilling very slow. I suspect that AIR holes ARE clogged.

1010 Decide to cut casing and pull bit.

1130 Go to GC Room to continue calibration

1140 AIR Flow @ 14 ml/min
BTEX STD CALIBRATION

ANALYSIS # 5
INT. TEMP 24
GAIN 2 CALIBRATION

UNK	1		4.7
UNK	2		503.7
UNK	3		1.0
UNK	5		455.6
UNK	6		1.2
UNK	7		249.6

1145 CALIBRATION BTEX STD

Analysis # 6
INT. Temp 24
GAIN 2

		CALIBRATION	
unK	1		3.8
unK	2		1.0
unK	3		2.8
unK	4		59.0
unK	5		1.8
unK	6		3.1

1155 AIR BLANK
Analysis # 7
INT. Temp 24
GAIN 2

		AIR BLANK	
unK	1		4.4
unK	2		217.8
unK	4		120.9
unK	5		301.6
unK	6		40.3

1204 AIR BLANK
Analysis # 8
Int. Temp 24
GAIN 2

		AIR BLANK	
unK	1		1.7
unK	2		63.2
unK	4		8.8
unK	5		167.6
unK	6		5.1

1213 CALIBRATION BTEX STD
ANALYSIS # 9
Int. Temp. 25
GAIN 2

		CALIBRATION	
unK	1		801.7
unK	2		401.9
unK	3		1.6
unK	5		931.7
unK	6		2.8

⑥

1310 JA OFFSITE
1330 FINISHED SITE #1

1340 READY TO START 2 PTS
@ SITE # 3

1620 REMEASURED PT DIST @
SITE # 1, SGS CREW
FINISHED 24 PTS TODAY

1640 EP, MR, JA OFFSITE

8½ HRS

Myrna Rodriguez
9/14/93

9/15/93

0730 EP, MR ON SITE
SGS ALREADY IN
PROGRESS

0745 JA ON SITE

0800 JA, EP, MR STAKING OUT
MW, PZ, BH LOCATIONS

0845 JA, EP, MR FINISHED
STAKING MW, BH, PZ SITES
FOR SITES #1 + 3
CAPT JOHNSON WILL LOOK
AT THE SITES + GIVE
US THE GO AHEAD LATER

0855 19.58' H_2O LEVEL FOR
OLD WELL

0915 JA, EP OFFSITE

0945 JA, EP ON SITE

1230 JA + MR OFFSITE FOR
LUNCH

1255 JA, MR ON SITE

1300 JA, EP, MR AWAIT DRILLERS
+ DRUMS

1400 MR OFFSITE, NEEDS TO CALL
ABOUT HRS INFO

1600 MR FINISH HRS CALLING

8 HRS
Myrna Rodriguez 9/15/93

9

9/16/93

0815 EP + MR ON SITE, RAINY ON SITE

0930 DRILLERS ARRIVE, TIME TO SET THINGS UP

0940 SAFETY BRIEFING $\overline{W}$ DRILLERS

DRILLERS
- ROBERT ROGERS (RR)
- DAVID VERNICK (DV)
- BRETT J. BORNER (BB)

1000 SPOKE $\overline{W}$ CAPT JOHNSON ABOUT WHERE TO SET UP DECON

1100 WATCH DRILLING

A = 10' BLS
B = 20' BLS

10

1130 CALIBRATING + SETTING UP GC

1230 JA + MR LEAVE SITE FOR LUNCH

1300 JA + MR ON SITE

~~1350~~

1315 WATCHING DRILLING P2 @ SITE # 3

1500 READY TO QUIT FOR TODAY
90 FT + <u>No</u> H_2O!

EP, MR, JA OFF SITE

6 1/2 HRS

Myrna Rodriguez 9/16/93

1220 Lunch is over with the maintenance guys. Engines & exhaust is back in force.
I go back over to Rig

1230 Drillers are at 70'.
Pick up next joint & weld casing

1300 Earl & I run get lunch

1350 Back at site. They have already drilled next 15' ft interval

1400 Begin to pull string to inspect bit.

1420 Go play with GC.

Air Flow : 14 ml/min

1425 Calibration BTEX STD

ANALYSIS # 10
INT. Temp 26
GAIN 2

		Calibration
UNK	1	2.0
UNK	2	1.0
UNK	3	3.3
UNK	5	2.6
UNK	6	5.5
UNK	7	1.5

1440 BTEX STD
ANALYSIS # 11
INT. Temp 27
GAIN 2

		Calibration
UNK	1	1.3
UNK	2	967.2
UNK	3	3.0
UNK	5	2.1
UNK	6	4.2
UNK	7	1.2

<< ABORTED ANALYSIS # 12 >>
PLUNGER FELL ON ME

1450 CALIBRATION BTEX STD
ANALYSIS # 13
INT. TEMP 27
GAIN 2 CALIBRATION

UNK	1		757.6
UNK	2		1.4
UNK	3		4.6
UNK	4		2.9
UNK	5		7.2
UNK	6		2.1

Set Library

1505 BTEX
ANALYSIS # 14
INT. TEMP 27
GAIN 2 BTEX

UNK	1		361.5
MTBE	2		408.0
BENZENE	3		498.9
TOLUENE	4		586.5
ETHYLB-MP XYL	5		1.483
O XYLENE	6		471.6

1516 METHANOL
ANALYSIS # 15
INT. TEMP. 27
GAIN 2 METHANOL

UNK	1		28.7
BENZENE	2		150.3
ETHYLB-MPXL	3		87.26
O XYLENE	4		22.11

1527 BTEX STD
ANALYSIS # 16
INT TEMP 27
GAIN 2 BTEX STD

UNK	1		885.4
MTBE	2		382.5
BENZENE	3		500.5
TOLUENE	4		530.0
ETHYLB-MPXY	5		1.566
O XYLENE	6		539.8

1538 BTEX STD

ANALYSIS # 17
INT Temp 27
GAIN 2 BTEX STD

UNK	1	560.1
MTBE	2	319.4
BENZENE	3	401.4
Toluene	5	345.9
EThylB-MPXY	6	931.9
O XYLENE	7	306.3

1552 Return to Rig

They have stopped drilling for the day.
Return to GC Room & shut it down

1610 Leave base
1620 At Hotel

Joe Byrd Jr

$\boxed{8.0 \text{ hrs}}$

THURSDAY 21 APRIL

0745 Leave hotel
0800 ON BASE
Set up GC. Need 10µl syringe to make-up BTEX STD.

0815 ON DRILL site, waiting for drill crew to arrive

0855 DRILLERS ARRIVE ON site.
Pull out string. Clean up drill bit
New compressor ARRIVES.
Run in pipe.
1000 Pick up next joint of pipe.
Weld casing.

1045 Begin drilling AGAIN. Today we ARE STARTING At 100' BLS.

1110 CALL M.E. to find out when syringe will be here. He sent it FEDEX Reg. Overnight.

1130 At 115' BLS. Welding casing

1245 at 130' BLS.

Lunch (.7 hr)

1324 Back at base
welding casing
1415 Drilling Again

1430 Go to Front gate to talk to gate guard about our FEDEX Delivery.

1435 Back at Rig,
1445 At 145' BLS.
Add on next joint & weld casing

1517 Done welding casing
Begin drilling next interval, to 160' BLS

1600 TD at 158' BLS.
1835 Drillers leave site
1645 leave base. Go to store to get rope for bailers
1707 At hotel

S Joe Byrd JR

$\boxed{8.7 \text{ hrs}}$

DAY 17

FRIDAY 22 April

0745 Leave hotel
0800 On Base
Set up GC.
Go get ice.

0830 Program GC.
Make BTEX MTBE STD
10 ml H_2O
5 µl BTEX
5 µl MTBE

0855 BTEX CALIBRATION
AIR Flow 11 ml/min

Analysis # 1 J. BYRD JR
INT. Temp 24 Roslyn ANGS
Gain 2 BTEX CALIBRAT

UNK	1	1.5
UNK	2	779.9
UNK	3	3.8
UNK	4	3.4
UNK	5	2.5
UNK	6	5.1
UNK	7	1.6

0903 PROGRAM LIBRARY
CALIBRATE FOR BENZENE

0908 BTEX STD
ANALYSIS # 2
INT. TEMP 24
GAIN 2 BTEX STD

UNK	1		1.5
MTBE	2		808.3 ppb
BENZENE	3		839.8 ppb
TOLUENE	4		733.0 ppb
ETHYLBENZENE	5		740.3 ppb
MP XYLENE	6		806.9 ppb

0919 RE CALIBRATE TO BENZENE

PREPARE "DIRTY" SAMPLE.
A MIXTURE OF GASOLINE & SOIL
THAT WAS USED LAST WEEK

0930 GAS SOIL
ANALYSIS # 3
INT TEMP 24
GAIN 2 GAS SOIL

SOIL WT.: 10g

MTBE	4		1.048 ppm
MTBE	5		902.0 ppb
Toluene	14		1.885 ppm
Ethylbenzene	18		1.048 ppm
Ethylbenzene	19		350.7 ppb
MP XYLENE	20		171.9 ppb
O XYLENE	21		1.961 ppm
O XYLENE	22		1.383 ppm

0945 BTEX STD
ANALYSIS # 4
INT TEMP 24
GAIN 2 BTEX STD

MTBE	2		1.317 ppm
BENZENE	3		909.8 ppb
TOLUENE	4		774.0 ppb
ETHYLBENZENE	5		781.4 ppb
ETHYLBENZENE	6		1.618 ppm
O XYLENE	7		832.8 ppb

0955 AIR BLANK
ANALYSIS # 5
INT Temp 2
GAIN 2

		AIR BLANK	
Benzene	2		16.61 ppb
TOLUENE	3		45.34 ppb
Ethylbenzene	4		55.47 ppb
Ethylbenzene	5		127.8 ppb
O Xylene	6		48.14 ppb

Put new pin in plotter
ON GC.

1020 AIR BLANK
ANALYSIS # 6
INT Temp 23
GAIN 2

		AIR BLANK	
Benzene	2		3.794 ppb
Toluene	3		~~73~~ 15.03 ppb
Ethylbenzene	4		8.952 ppb
Ethylbenzene	5		30.68 ppb

1037 Go to Rig. Help them with
A chore. (BREAK APART a tool)

1110 Back at GC.

1112 BTEX STD
ANALYSIS # 7
INT Temp 23
GAIN 2

		BTEX	STD
MTBE	2		829.8 ppb
Benzene	3		855.6 ppb
TOLUENE	4		600.7 ppb
Ethylbenzene	5		738.7 ppb
Ethylbenzene	6		1.494 ppM
O XYLENE	7		764.0 ppb

1120 Clear Library 1

1120 BTEX STD
ANALYSIS # 8
INT TEMP 23
GAIN 2 BTEX STD

unk	1		1.5
unk	2		424.4
unk	3		2.2
unk	4		1.7
unk	5		1.3
unk	6		2.7
unk	7		949.0

SAVE INFORMATION

1140 BTEX STD
ANALYSIS # 9
INT TEMP 24
GAIN 2 BTEX STD

MTBE	2		973.1 ppb
BENZENE	3		989.6 ppb
TOLUENE	4		1.108 ppM
Ethylbenzene	5		1.098 ppM
Ethylbenzene	6		2.297 ppM
O xylene	7		1.042 ppM

CALIBRATE

1153 AIR BLANK
ANALYSIS # 10
INT TEMP 24
GAIN 2 AIR BLANK

BENZENE	2		17.18 ppb
TOLUENE	3		68.51 ppb
ETHYL BENZENE	4		103.3 ppb
MP XYLENE	5		118.1 ppb
O XYLENE	6		87.9 ppb

1206 Goto Rig site

~~Briggy~~ soil samples back

1230 PZ-01 A
ANALYSIS # 11
INT Temp 24
GAIN 2

$\boxed{\text{Soil wt.: 10g}}$

PZ-01 A

Toluene	2	10.49 ppb
MP xylene	3	2.737 ppb
MP xylene	4	21.82 ppb 24.557

1240 PZ-01 B
Analysis # 12
Int. Temp 24
Gain 2

$\boxed{\text{soil wt.: 10g}}$

PZ-01 B

Toluene	2	8.245 ppb
MP xylene	3	4.837 ppb
MP xylene	4	13.80 ppb 18.637

1250 PZ-01 C
ANALYSIS # 13
Int Temp 24
GAIN 2

$\boxed{\text{soil wt.: 10g}}$

PZ-01 C

unk	1	2.0

1300 ~~AIR~~ ? PZ-01 D
ANALYSIS # 14
INT Temp 25
GAIN 2

$\boxed{\text{Soil wt.: 12g}}$

PZ-01 D

unk	1	2.3

1308 AIR BLANK
ANALYSIS # 15
INT Temp 24
GAIN 2

AIR BLANK

unk	1	3.3

1327 BTEX STD
Analysis # 16
Int Temp 24
Gain 2

		BTEX STD	
MTBE	2	554.3	ppb
Benzene	3	361.7	ppb
Toluene	4	401.6	ppb
mp Xylene	5	235.4	ppb
mp Xylene	6	523.8	ppb
O Xylene	7	526.8	ppb
		1286.0	

1340 Go to Rig site
Get sample of soil from the disposal pile to check background readings

1408 Pile Dirt
Analysis #
Int. Temp
Gain

Soil wt.: 20g

		Pile Dirt	
Benzene	2	26.22	ppb
Toluene	3	27.16	ppb
Ethylbenzene	4	18.42	ppb
mp Xylene	5	28.43	ppb
O Xylene	6	5.688	ppb
		34.118	

1420 Go to PZ-01 area to police area & clean up stuff

1450 Go to PZ-02 site

1530 Leave base
1545 At motel

Joe Byrd Jr

80 hrs

DAY 18

SATURDAY 23 APRIL

0845 Leave hotel
0900 On BASE
Check water Level AL PZ-01

0905 Set up GC & make BTEX STD
CALIBRATE GC

BTEX MTBE STD
10 ml H_2O
5 μl BTEX
5 μl MTBE

AIR Flow 11 ml/min

Clear Library

0930 CALIBRATION
Analysis # 1
INT. Temp 20
GAIN 2 CALibration

unk	1	2.8
unk	2	372.1
"	3	2.5
"	4	1.7
"	5	1.0
unk	6	2.2
"	7	661.8

0940 CALIBRATION
ANALYSIS # 2
INT. Temp 21
GAIN 2

		CALIBRATION
unk	1	1,9
unk	2	453,6
unk	3	2.7
unk	4	1.7
unk	5	1.1
unk	6	2.4
unk	7	714.9

Set LIBRARY
CALIBRATE to Benzene

0955 BTEX STD
ANALYSIS # 3
INT. Temp 21
GAIN 2

		BTEX STD
unk	1	1.2
MTBE	2	501.1 ppb
Benzene	3	638.5 ppb
TOLUENE	4	732.5 ppb
ETHYLBENZENE	5	753.3 ppb
MP XYLENE	6	726.4 ppb
[illegible] X[illegible]NE	7	729.9 ppb

1005 Go to dirt disposal pile
to get samples for
back ground readings

1020 PILE DIRT C

soil wt.: 10 g

ANALYSIS # 4
INT. Temp 21
GAIN 2

		PILE DIRT C
UNK	1	501.1
TOLUENE	3	18.58 ppb
Ethylbenzene	4	23.27 ppb
MP XYLENE	5	JB ~~279~~. 37.36 ppb

1030 PILE DIRT D

soil wt.: 12 g

ANALYSIS # 5
INT. Temp 21
GAIN 2

		PILE DIRT D
UNK	1	2.0
TOLUENE	2	4.313 ppb
MP Xylene	4	15.57 ppb

1040 PILE DIRT B
Analysis # 6
INT. Temp 22
GAIN 2

soil wt.: 12 g

		PILE DIRT B
unk	1	3.5
MP xylene	4	9.391 ppb

1050 PILE DIRT B Reshoot
Analysis # 7
INT Temp 22
GAIN 2

		PILE DIRT B Reshoot
unk	1	1.6

1100 BTEX STD
Analysis # 8
INT. Temp 22
GAIN 2

		BTEX STD
unk	1	4.7
MTBE	2	1.483 ppm
BENZENE	3	715.9 ppb
TOLUENE	4	671.8 ppb
Ethylbenzene	5	623.6 ppb
MP XYLENE	6	644.2 ppb
O XYLENE	7	648.3 ppb 1292.5

1110 Go to PZ-02 for drilling
HAVE 1st 7' in ground
picking up next joint &
welding casing

1130 START DRILLING
7' → 22' interval

1140 Get soil sample for GC.
PZ-02 15'

1155 PZ-02 15'
ANALYSIS # 9
INT. Temp 22
GAIN 2

Soil wt.: 10g

		PZ-01 15
UNK	1	862.0
TOLUENE	2	6,636 ppb
EThylbenzene	3	8,331 ppb
MP Xylene	4	20.79 ppb

1205 Lunch (0.6 hr)

1240 At drill site
DRILLER is welding casing

1245 Begin drilling
25' → 40' interval

1250 TAKE cuttings sample
PZ-02 30'
Return to GC room &
Test sample

1300 PZ-02 30
ANALYSIS # 10
INT. Temp 23
GAIN 2

Soil wt.: 14g

		PZ-02 30
UNK	1	2.5

1308 INT. Temp. has RISEN 3° since this MORNING.

1310 AIR
Analysis # 11
INT. Temp 23
GAIN 2

		AIR
UNK	1	4.0

1316 BTEX STD
ANALYSIS # 12
INT. Temp 24

GAIN	2	BTEX STD
UNK	1	2.7
MTBE	2	1,293 ppM
BENZENE	3	882.2 ppb
TOLUENE	4	975.6 ppb
EThyL Benzene	5	874.0 ppb
MP Xylene	6	784.3 ppb
O Xylene	7	849.8 ppb

1325 CALIBRATE GC

1330 PZ-02 30 Reshoot

ANALYSIS # 13

INT. Temp 24

GAIN 2

$\boxed{\text{soil wt.: 14g}}$

		PZ-02 30 RESHOOT
UNK	1	2.2
Benzene	2	14.00 ppb
Toluene	3	40.72 ppb
Ethylbenzene	4	30.15 ppb
MPXylene	5	45.18 ppb
O xylene	6	12.06 ppb

1335 Go to Rig
welding casing

1342 Begin drilling 40' → 55' interval

1352 Take sample PZ-02 45'

Goto GC room

Prepare sample

1400 PZ-02 45'

ANALYSIS # 14

INT. Temp 24

GAIN 2

$\boxed{\text{soil wt.: 20g}}$

		PZ-02 45
UNK	1	1.6
Ethylbenzene	3	22.62

1412 Return ~~to~~ Rig
welding casing

1430 Begin drilling 55' → 70' interval

1435 Take sample PZ-02 60'
Return to GC room to
run sample

Prepare sample

1445 PZ-02 60'
Analysis # 15 $\boxed{\text{soil wt.: 20g}}$
int. Temp 24
Gain 2

		PZ-02 60
unk	1	135.4

1455 Return to Rig
welding casing

1510 Begin drilling 70'-85' interval

1515 Take sample PZ-02 75

Return to GC room
prepare sample

1527 PZ-02 75
Analysis # 16 $\boxed{\text{soil wt.: 20g}}$
int Temp 25
Gain 2

		PZ-02 75
unk	1	3.6

1535 Return to Rig

Welding casing

1603 Begin drilling 85' → 100' interval

~~Take sample PZ-02 90~~
Decide not to sample this interval

1610 Go to GC room to shut it down

1615 Back at Rig

1645 At 96'. No returns. Seems like lost circulation.
Try to pull up pipe & it is stuck.

1650 Now it is blowing sand like the dickens

Drill down to 98'

1700 Drillers shut down & leave
we police area

Leave BASE

1715 At hotel

Joe Byrd Jr

DAY 20

MONDAY 25 APRIL

0745 Leave Hotel
0800 On BASE

CALL IN-SITU. Must wait until 0900 EST. We want to delay ARRIVAL of Hermit until MAY 6

0810 TURN ON & set up GC.
0815 Chris (equipment operator) is AVAILABLE to dump drums of soil.

0845 DRILLERS ARRIVE
0900 CALL IN-SITU
BILL McCLEARY not in

Begin programing & calibrating GC. Build BTEX MTBE STD

Air Flow @ 11 ml/min

BTEX MTBE STD
10 ml H_2O
5 µl BTEX
5 µl MTBE

0938 Calibration
Analysis # 1
Int. Temp 23
Gain 2 Calibration

unk	1	641.1
unk	2	675.1
unk	3	3.4
unk	4	2.9
unk	5	2.3
unk	6	4.6

Set Library
Calibrate to Benzene

0954 ~~Calib~~ BTEX STD
Analysis #2
Int. Temp 24
Gain 2 BTEX STD

unk	1	2.7
MTBE	2	1,885 ppM
Benzene	3	1,022 ppM
Toluene	4	881.2 ppb
Ethylbenzene	5	752.5 ppb
MP Xylene	6	747.4 ppb

1000 Go to Rig

Drilling 100' → 115' interval

1030 At 112' BLS.
Pick up next joint & weld casing

1100 Get soil sample that has the vegatable oil in it that the drillers use to lube the drill bit.

1108 Veg Oil
Analysis # 3
int Temp 26
Gain 2 Veg Oil

$\boxed{\text{soil wt.: 20g}}$

unk	1	144.0
Toluene	2	6.164 ppb
Ethylbenzene	3	14.56 ppb
MP Xylene	4	24.45 ppb
unk	5	7.3

1122 Int. Temp has Risen 3°.
Recalibrate GC

1125 BTEX STD
Analysis #4
Int Temp 26
Gain 2

		BTEX-STD
UNK	1	3.4
MTBE	2	1,087 ppM
BENZENE	3	787.9 ppb
TOLUENE	4	721.4 ppb
ETHYLbenzene	5	657.2 ppb
ETHYL benzene	6	1,282 ppM
MP XYLene	7	203.2 ppb

CALibRATE to Benzene

1135 BTEX STD
Analysis # 5
Int. Temp 26
Gain 2

		BTEX STD
UNK	1	3.5
MTBE	2	1,327 ppM
BENZENE	3	924.6 ppb
TOLUENE	4	752.1 ppb
ETHYLbenzene	5	645.8 ppb
MP XYLene	6	638.0 ppb
O Xylene	7	777.6 ppb

1145 Return to Rig

Have Drilled 115'→130' interval.
Pick up next joint & weld
casing.

Are @ 128' BLS

1205 Begin drilling 130'→145' interval
1235 At 143' BLS
Break for
Lunch (0.8 lunch break)

1324 BACK ON BASE

Pick up next joint
DRILLERS ARE welding CASING

1335 Begin drilling 145' → 160' interval.

1400 TD @ 159' BLS
GRAB sample for GC

1415 PZ-02 160
Analysis # 6
Int. Temp 26
GAIN 2

soil wt.: 30 g

		PZ-02 160
unk	1	127.8
MP XYLENE	3	5.238 ppb

1425 Return to Rig

Police AREA. Secure ~~the~~ wellhead with marked drum. Dump drums of soil, sweep up AREA Load & move equipment.

1601 BTEX STD
Analysis # 7
Int. Temp 25
GAIN 2

		BTEX STD
UNK	1	90.2
MTBE	2	791.0 ppb
BENZENE	3	919.5 ppb
TOLUENE	4	898.5 ppb
ETHYLBENZENE	5	758.0 ppb
MP XYLENE	6	725.4 ppb
O XYLENE	7	927.9 ppb

1611 Shut down GC.

Continue to move equipment to new site, PZ-03.
DRILLERS LEAVES SITE

1626 Go to PZ-02 to take water level reading

Water at 144.46' BLS

1644 Leave base
Goto to FEDEX BOX

1700 At Hotel

Joe Byrd JR

8.5 hrs

DAY 21

Tuesday 26 APRIL

0745 leave hotel
0800 At BASE

Set-up, calibrate GC.

BTEX MTBE STD: 10 ml H_2O
5 µl BTEX
5 µl MTBE

Air Flow Rate: 11 ml/min.

0821 Calibration
ANALYSIS # 1
Int. Temp 21
GAIN 2

		CALIBRATION
UNK	1	1.2
UNK	2	652.1
UNK	3	3.5
UNK	4	2.9
UNK	5	1.9
UNK	6	3.8

INCREASE ANALYSIS TIME to 450 s.

0840 CALIBRATION
ANALYSIS # 2
INT. TEMP 22
GAIN 2

		CALIBRATION
UNK	1	2.6
UNK	2	351.1
UNK	3	2.1
UNK	4	1.3
UNK	5	919.9
UNK	6	1.9
UNK	7	594.8

Set LIBRARY

CALIBRATE to BENZENE

0854 BTEX STD
ANALYSIS # 3
INT. TEMP 22
GAIN 2

		BTEX STD
UNK	1	1.4
MTBE	2	831.2 ppb
BENZENE	3	856.4 ppb
TOLUENE	4	840.1 ppb
EthylBENZENE	5	746.1 ppb
MP XYLENE	6	741.8 ppb
O XYLENE	7	719.8 ppb

GC is set. WAIT ON drillers.

0915 DRILLERS ARRIVE.
~~Ø~~ clean-up GC ROOM while drillers PREP Rig for drilling

1100 Drillers ARE having A problem with drill bit. It seems to have seized up.

1130 Spud in
1140 At 10' BLS. (0'-8' BLS interval)
Pick up next joint & weld
casing

1215 Done welding. Begin drilling
10' → 25' interval.

1228 Take soil sample PZ-03 15'

Prepare sample

PZ-03 15'
Analysis # 4
Int Temp 23
Gain 2

$\boxed{\text{soil wt.: 20g}}$

PZ-03 15

NOTHING

1243 Go back to Rig

1300 Lunch (0.6)
1336 At Rig

1350 Begin drilling 25' → 40' interval

1353 Take soil sample PZ-03 30'

1400 PZ-03 30
Analysis # 5
Int. Temp 24
Gain 2

$\boxed{\text{soil wt.: 20g}}$

PZ-03 30

UNK	1	48.1

1415 Return to Rig.

Welding casing

1430 Begin drilling 40' → 55' interval

1435 Take soil sample PZ-03 45'

Recalibrate GC

1440 BTEX STD
Analysis # 6
Int Temp 24
Gain 2 BTEX STD

ABORT Run

1450 BTEX STD
Analysis # 7
Int Temp 24
Gain 2 BTEX STD

unk ~~33~~	1	2.4
~~MTBE~~ unk	2	234.2
~~Benzene~~ unk	3	1.2
~~Toluene~~ unk	4	687.9
Ethylbenzene	~~5~~6	1.065 ppm
~~MP Xylene~~ unk	~~6~~5	394.6
~~O Xylene unk~~ mP xylene	7	160.7 ppb

Reshoot BTEX STD

1500 BTEX STD
Analysis # 8
Int. Temp 25
Gain 2 BTEX STD

unk	1	2.7
unk	2	433.2
unk	3	2.1
unk	4	1.6
unk	5	1.0
Ethylbenzene	6	2.676 ppm
MP Xylene	7	429.1 ppb

1515 BTEX STD
Analysis # 9
Int. Temp 25
Gain 2 BTEX STD

unk	1	890.6
unk	2	331.4
unk	3	1.8
unk	4	1.3
unk	5	874.0
ethyl benzen	6	2.321 ppm
MP xylene	7	373.9 ppb

Calibrate to Benzene

1525 PZ-03 45
ANALYSIS # 10 $\boxed{\text{Soil wt.: 20 g}}$
Int. Temp 25
GAIN 2

		PZ-03 45
unk	1	2.4
Benzene	2	16.12 ppb
Toluene	3	37.17 ppb
Ethylbenzene	4	27.39 ppb
MP Xylene	5	44.66 ppb
O Xylene	6	9.717 ppb

1535 Return to Rig

Get sample PZ-03 60

Prepare sample

1543 PZ-03 60
ANALYSIS # 11 $\boxed{\text{Soil wt.: 20 g}}$
Int. Temp 25
GAIN 2

		PZ-03 60
unk	1	2.6
Toluene	2	6.581 ppb
MP Xylene	4	4.127 ppb

1553 Return to Rig

Drillers are packing up for the day. Hole is at 70' BLS.

Pack up equipment & shut down GC.

1600 Drillers leave site

1604 ~~Leave site~~ Take water level reading at PZ01 & PZ-02

Check day well

~~1620~~ 1630 Leave base

1643 At hotel

Joe Byrd Jr

$\boxed{8.4\ hr}$

DAY 22

Wednesday 27 APRIL

0748 Leave hotel
0800 On base
Set up GC, calibrate GC.
Make BTEX MTBE STD

Air Flow Rate: 12 ml/min

BTEX STD: 10 ml H_2O
5 µl BTEX
5 µl MTBE

0815 Go dump drums of soil

0905 Drillers arrive

0928 Calibration
Analysis # 1
Int. Temp 24
Gain 2

		Calibration
unk	1	5.7
unk	2	435.7
unk	3	2.5
unk	4	2.1
unk	5	1.4
unk	6	2.9
unk	7	874.5

0944 CALIBRATION
Analysis # 2
Int. Temp 24
GAIN 2 CALIBRATION

unk	1	301.5
unk	2	318.4
unk	3	1.8
unk	4	1.2
unk	5	840.9
unk	6	1.7
unk	7	548.0

Set Library

Calibrate to Benzene

1000 BTEX STD
Analysis # 3
Int. Temp 25
GAIN 2

		BTEX STD	
MTBE	2	1.349	ppm
Benzene	3	1.328	ppM
Toluene	4	1.584	ppM
Ethyl benzene	5	1.67	ppM
MP Xylene	6	1.622	ppM
O Xylene	7	1.561	ppM

1010 Go to Rig

1015 Begin drilling 70' → 85' interval

~~Get soil sample PZ-03 7~~
Will get soil sample for next interval

1030 Drilled to 83' BLS
Pick up next joint & weld casing

1105 Begin drilling 85' → 100' interval

1109 Get soil sample PZ-03 90'

Prepare sample

1118 PZ-03 90
Analysis # 4 | soil wt.: 20g |
Int. Temp 25
Gain 2 PZ-03 90

Ethylbenzene	3	30.02 ppb
MP Xylene	4	50.14 ppb
O Xylene	5	10.81 ppb

1130 Return to Rig

Drilled down to ~~10~~ 98' BLS

Pick up next intervals & weld casing

1155 Begin drilling 100' → 115' interval

Take soil sample PZ-03 105

Prepare sample

1208 PZ-03 105
Analysis # 5 | soil wt.: 20g |
Int. Temp 25
Gain 2 PZ-03 105

Ethylbenzene	1	7.667 ppb
Ethylbenzene	3	9.005 ppb

1220 Air Blank
Analysis # 6
Int. Temp 26
Gain 2 Air Blank

UNK	1	1.1

1227 Return to Rig.

Break for Lunch (0.6)

1303 On Base

Catch up on paperwork

1430 Return to Rig
1440 At 145' BLS

Pick up next joint & weld casing

1507 Begin drilling 145' → 160' interval

1524 Take sample PZ-03 15~~8~~5 (15 written above)

Prepare sample

1530 PZ-03 +155

Analysis # 7 $\boxed{\text{Soil wt.: 22g}}$

int. Temp 27

Gain 2

		PZ-03 155
UNK	1	66.6

Recalibrate due to INT. Temp increase

Talked to EP. Said it was not important since there was no reading on last sample.

1545 BTEX STD

Analysis # 8

int. Temp 27

Gain 2

		BTEX STD
UNK	1	
MTBE	2	1.178 ppm
BENZENE	3	982.0 ppb
TOLUENE	4	939.8 ppb
ETHYLBENZENE	5	846.6 ppb
ETHYLBENZENE	6	1.662 ppm
MP XYLENE	7	261.6 ppb

1600 Shut down GC.

846.6

1.662

2468.6

Drilling is done at site PZ-03. Begin rigging down equipment

EP & JB survey in sites PZ-01, PZ-02, PZ-03

1630 Driller leave site

EP & JB Take water level
Readings at sites
PZ-01, PZ-02, PZ-03

1715 Leave base

1730 At hotel

Joe Byrd Jr $\boxed{9.1 \text{ hrs}}$

DAY 23

Thursday 28 April

0745 Leave hotel
0800 On base

Check water levels
PZ-03, PZ-02, PZ-01

0900 Leave base
0910 At hotel

Joe Byrd Jr

1.5	hrs	on base
9.5	hrs	Travel
11.0		Total

DAY 40 (99)

Sunday 15 MAY 1994

TRAVEL to

Roslyn NY

(CST)
1000 Leave house for Airport

1840 (EST) At Roslyn hotel

Joe Byrd Jr

7.6 hrs

DAY 41

101

Monday 16 MAY 1994

0800 Leave hotel
GoTo LAB & get sampling equip.
0830 On BASE
TAKE water level Readings
on PZ's & MW's

0950 CALL ABF Trucking to pickup
cargo boxes on Wednesday 18 MAY
between 11:00 - 1400. Contact Bob

1030 Begin purging MW-001

1200 Move to MW-002, Purge.

1300 Move to MW-003. Purge

1350 Set-up to sample MW-001
Sample ALL wells

1815 Drillers Leave
1820 Leave base. TAKE samples to
LAB.
1845 At Hotel

Joe Byrd Jr

10.8 hrs

DAY 42

Tuesday 17 MAY 1994

0800 Leave hotel
0815 On BASE
Analysis Time: 450 sec
CALibrate GC — 10 mL H_2O, 5 µL BTEX
GAIN: 2
Windo: ±10%
Chart: 0.5 cm/min — GAS Flow: 10 mL/MIN, Oven Temp: 40°C

0842 BTEX
ANALYSIS # 1
Int. Temp 23
GAIN 2

		BTEX
unk	1	118.1
unk	2	4.0
unk	3	3.4
unk	4	3.3
unk	5	7.4
unk	6	3.7

Set Library. Calibrate to ~~Toluene & Benzene~~ Toluene by mistake.
0902 CALibrate to Benzene. Checks out OK

0905 MW-001
Analysis # 2
Int. Temp 23
GAIN 2

$\boxed{20\text{ mL } H_2O}$

		MW-001
unk	1	351.9 mVS

0918 MW-002
ANALYSIS # 3
Int. Temp 22
GAIN 2

$\boxed{20\text{ mL } H_2O}$

		MW-002
unk	1	1.6
Ethylbenzene	2	12.0 ppb

0926 MW-003
ANALYSIS # 4
Int. Temp 22
GAIN 2

$\boxed{20\text{ mL } H_2O}$

		MW-003
unk	1	143.9 mVS

0935 BTEX STD
Analysis # 5
Int. Temp 22
Gain 2

BTEX STD

unk	1	128.4
Benzene	2	956.7 ppb
Toluene	3	1.046 ppM
Ethylbenzene	4	1.081 ppM
MP-Xylene	5	1.085 ppM
O-Xylene	6	1.041 ppM

0945 Begin Clearing room & packing boxes

1030 Go to Return Ultra Air
1105 Done at AirWeld. Return to BASE

Take lunch (0.6)

1200 On BASE. Begin prepping For slug Test.
1220 At MW-001. Do Slug Test

1504 Move to MW-002. Do Slug Test.

1600 Move to MW-003. Do Slug Test.

1745 Done at MW-003. Package equipment to Return to HAZCO.

1755 Leave BASE. Go to FEDEX.
1824 Leave FEDEX.
1840 At Hotel

Joe Byrd Jr

10.1 hrs

DAY 43

Wednesday 18 MAY 1994

0754 leave hotel. Goto lab to get sampling supplies

0815 At BASE.
Prep. to purge wells for Todays sampling

0930 Done at MW-001. Move to MW-002. Purge

0955 Done at MW-002. Move to MW-003. Purge.

Done Purging

1040 Begin Sampling MW-001

1150 Done sampling.

1315 Done packing equipment
EP goes to LAB to drop off samples. I wait for truck to ship equipment

(107)

1350 Load Boxes on ABF Freight Line Truck.
Shipment # 289054221

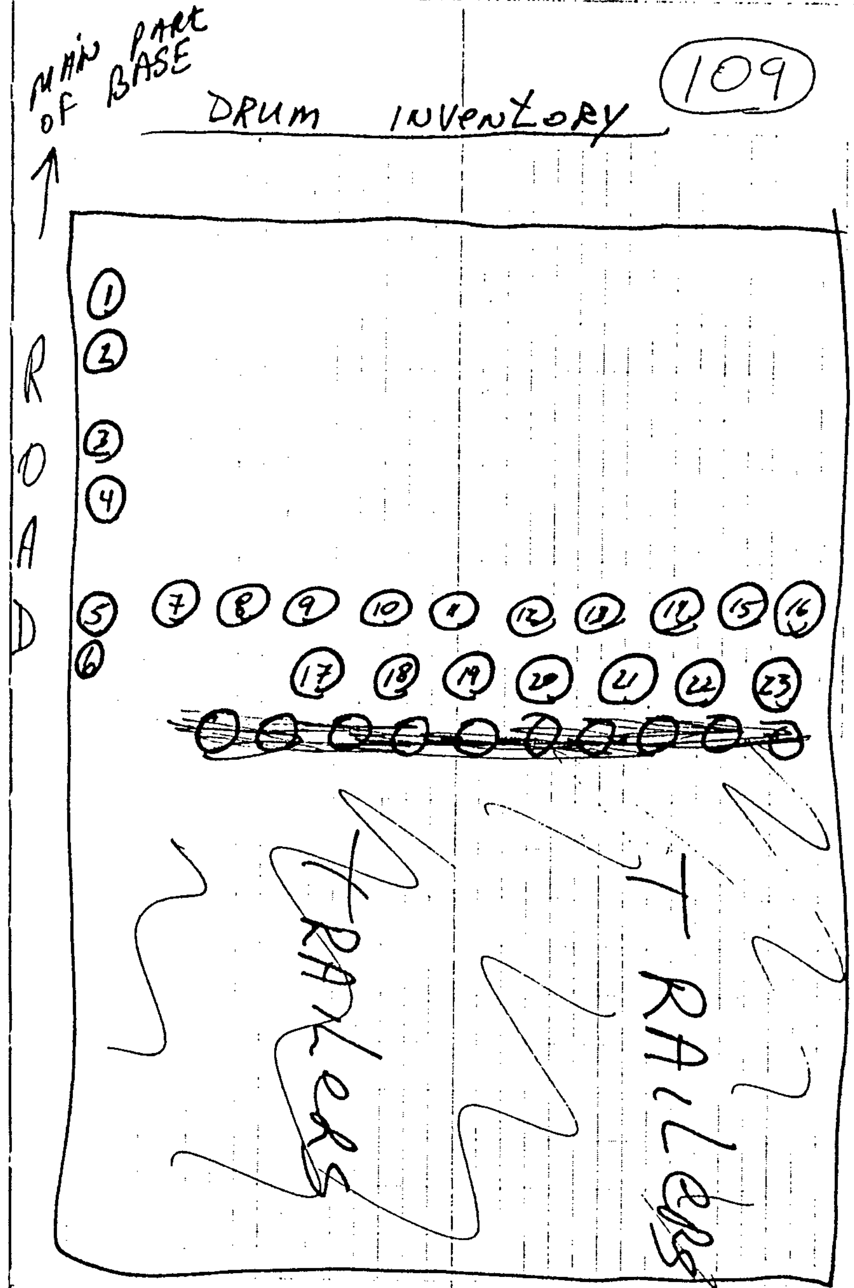
1410 Inventory barrel
1420 leave base
1430 At Hotel
(EST) 1500 leave hotel
(CST) 2140 Home

Joe Byrd Jr

6.6 on base
7.6 TRAVEL
14.2 hrs

1. MW-003 WATER
2. MW-003 WATER
3. MW-001 WATER
4. MW-001 WATER
5. MW-002 WATER
6. MW-002 WATER
7. MW-002 SOIL
8. MW-002 SOIL
9. MW-003 SOIL
10. MW-003 SOIL
11. BG-001 BH SOIL
12. 03-005 BH SOIL
13. 03-003 BH SOIL
14. 03-006 BH & 03-002 BH SOIL
15. 01-004 BH & 01-004 BH SOIL
16. 02-003 BH SOIL
17. 03-001 BH & 03-004 BH SOIL
18. 01-002 BH SOIL
19. 01-001 BH SOIL
20. DECON WATER
21. DECON WATER
22. 02-002-BH & 02-001 BH SOIL
23. 02-006 BH, 02-007 BH, 02-008 BH, 02-004 BH, 02-005 BH } SOIL

DRUM INVENTORY



CONTENTS

PAGE NO.	REFERENCE	DATE

9/10/93 ①

0745 EARL PARKER (EP) + MYRNA RODRIGUEZ (MR) ON SITE

0800 MET w CAPT JOHNSON, BRIEFING ON WHAT WE'RE GOING TO DO

0805 EP + MR ON SITE, LOOKING AT THE SITES

0830 EP + MR LEFT SITE, WENT TO PICK UP BOX OF SUPPLIES AT AIR CARGO TERMINAL

~~1430~~ EP + MR ON SITE, MARKING SGS POINTS

~~1650~~
1700 EP + MR LEFT SITE

Myrna Rodriguez (9/10/93)

11 HRS

②

9/11/93 NO WORK

9/12/93 NO WORK

Myrna Rodriguez

∅ HRS

9/13/93 (3)

0740 EP + MR ARRIVE ON SITE
TRACER RESEARCH ON SITE
MET W LAWRENCE S. FROM
TRACER + ROBERT

0750 SHOWED SGS PEOPLE THE
SITES
0800 SAFETY BRIEFING
0820 SGS READY TO BEGIN
GOING DWN 5FT

0845 3-2 SAMPLE TAKEN
CLEAN

0850 PT # 3-1
AL Aarons CAME ON SITE

0857 CHRIS HENCHEY (ELECTRICIAN)
ON SITE

0920 REMEASURED SGS PTS.

1020 JERRY ARRIAGA (JA) ON SITE
1030 FINISH SITE #3

CLEANUP TIME FOR SGS, THEY'RE
FILLING UP THE HOLES (4)

1105 PREPARING ~~FOR~~ SITE #~~2~~ 1

1115 BEGIN SGS FOR SITE #1

1145 BREAK FOR LUNCH, OFF
SITE (EP, MR, JA)

1215 ON SITE (EP, JA, MR)
CONTINUE SGS SITE #1

1300 HELPED EP MEASURE SITE # 3

1500 FINISHED THE 20 POINTS,
WE'RE CONTINUING
W MORE POINTS

1650 FINISHED FOR TODAY
SGS OFFSITE, EP, JA, MR
OFFSITE

Myrna Rodriguez 9/13/93
9 HRS

0725 EP + MR ON SITE, SGS HAS BEGUN

0735 JA ON SITE

0740 RELOCATED TWO PTS FROM SITE #3 TO SITE #1

0815 EP, JA, MR READY TO CHECK WELLS

19.54' FROM TOP OF CASING (H_2O LEVEL)

0835 EP OFFSITE, JA, MR WORKING ON HRS USING CELLULAR PHONE + WATCHING SGS

1055 SGS CREW HAVE TO REDO PT., IT SEEMS LIKE THEY HIT ROCK

1145 EP, JA + MR OFF SITE LUNCH

1215 EP, JA, MR ON SITE

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APPENDIX G

HRS DATA PACKAGE

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PRELIMINARY ASSESSMENT (PA) SITE INSPECTION (SI)
DATA REQUIREMENTS FOR FEDERAL FACILITY DOCKET SITES

Roslyn ANGS, Roslyn, New York

*1. **Supply copies of all sampling data, on-site and off-site, including location map, detection limits (see definitions below), raw data sheets, QA/QC documents, date(s) sampled, analytical method(s) used, well or boring logs, and sampling technique(s).**

*2. **Locate and identify on a map all known or suspected sources (see definition below). Supply all information about source(s) such as: dates of operation, use, or spillage; amounts of material deposited, stored, or spilled; dimensions of source(s); known or suspected hazardous substances (see definition below), etc.**

*This information can be found in Section 4 of the work plan.

*3. **Provide a description of all aquifers beneath the site, including description of overlying materials, depth first encountered, thickness, and composition.**

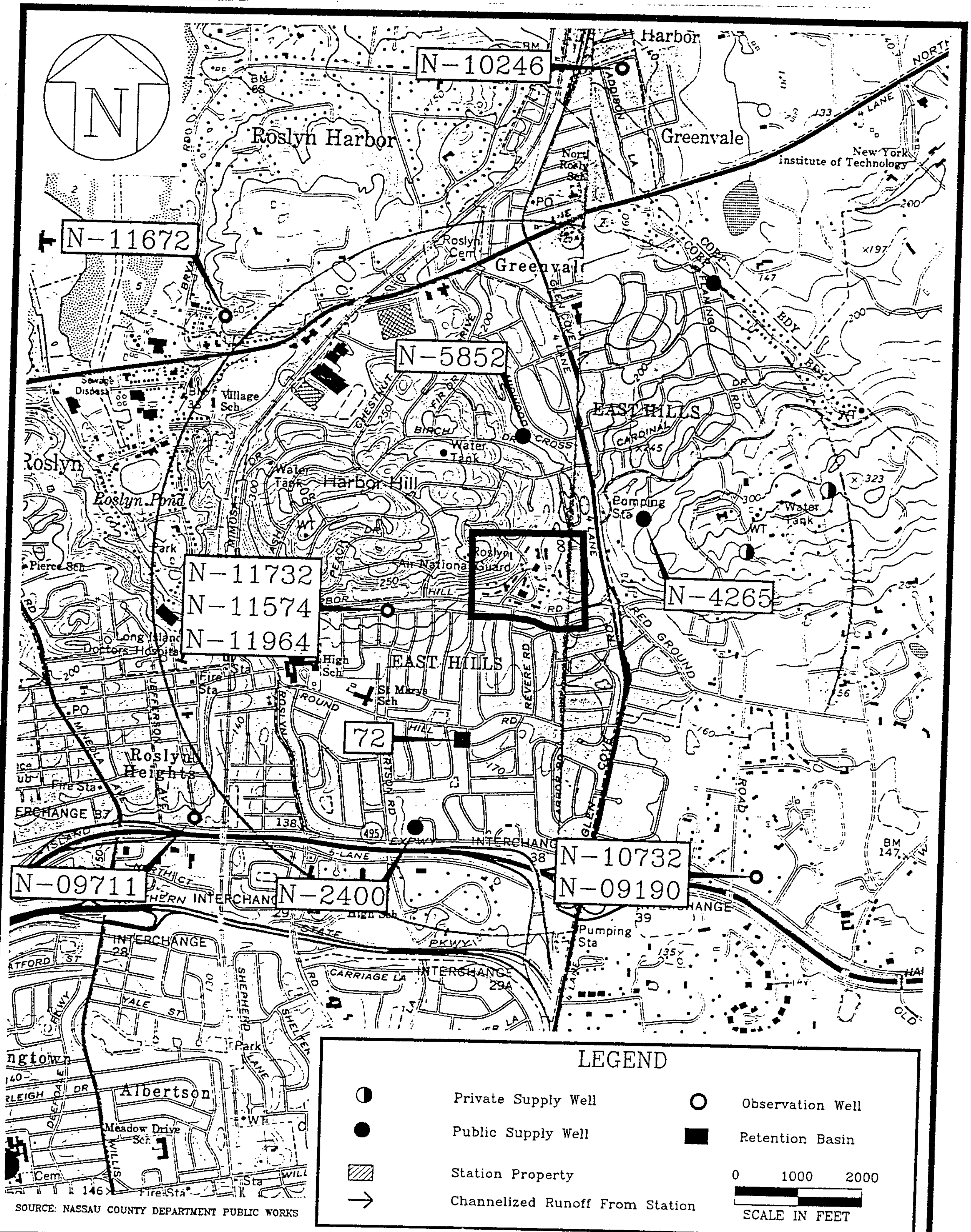
*This info can be found in Section 4.3.4 of the work plan.

4. **For each source, choose one description from Table 1 that describes the groundwater contaminant. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the Table.**

None of the source descriptions from Table 1 apply to this particular site.

5. **Provide the location of all drinking water wells in all aquifers beneath the site in a 4-mile radius from the site (property boundary) by HRS distance ring and locate the wells within a one-mile radius on a 7.5-minute topographic map. Provide information on depth of well(s), screening interval(s), depth of aquifer(s) encountered, population served for multiple wells (i.e., municipal system), provide the number of wells, location of all wells (regardless of 4-mile limit), average annual pumpage of each well (regardless of 4-mile limit), and total population served by system. Include information on all standby wells.**

Three public supply wells in the Roslyn Water District are significant because of their proximity to the Station (Figure G.1). Wells N-5852 and N-4265 are located approximately 1,600 feet north-northwest and 1,000 feet northeast from the Station boundary, respectively. Well N-2400 is located approximately 1,800 feet south from the surface from the surface water retention basin (Nassau County N0. 72)receiving surface water runoff from the Station property. Each of these wells are screened in the principle



SOURCE: NASSAU COUNTY DEPARTMENT PUBLIC WORKS

DRAFT
FIGURE G.1

M\ROSLYN\ROSL4-10

PUBLIC AND PRIVATE WATER WELLS WITHIN 1 MILE RADIUS OF ANGS
Roslyn Air National Guard Station
New York Air National Guard
Roslyn, New York

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

JULY 1994

Figure G.1

aquifer and were drilled to total depths ranging between 439 and 490 FBLS. Approved water yield capacities for these wells range from 1,000 GPM to 1,200 GPM.

Seven observation wells in the vicinity of Roslyn ANGS were also located and are shown on Figure G.1. Of these wells, three are in the upper glacial aquifer (N-09711, N-10246, and N-11672), three are in the Magothy Aquifer (N-09190, N-10732, and N-11732), and one is in the Lloyd aquifer (N-11574). Historical well information, sampling information, and chemical examinations, (including chemical analyses for Volatile Organic Compounds) for these seven observation wells are found in Appendix B.

According to the U.S. Geological Survey Water-Supply Paper, approximately 66 public wells exist within a 4-mile radius of the site.

6. **Provide information and location (on 7.5-minute topographic map) of wells within 4 miles that are used to irrigate five or more acres of commercial food or forage crops, or watering of commercial livestock, or ingredient in commercial food preparation, or supply for aquaculture, or supply for a major or designated water recreation area, excluding drinking water use.**

   According to the U.S. Geological Survey Water-Supply Paper, approximately 88 domestic wells exist within a 4-mile radius of the site. Two of these wells can be found within a 1-mile radius from the site. (Figure G.1)

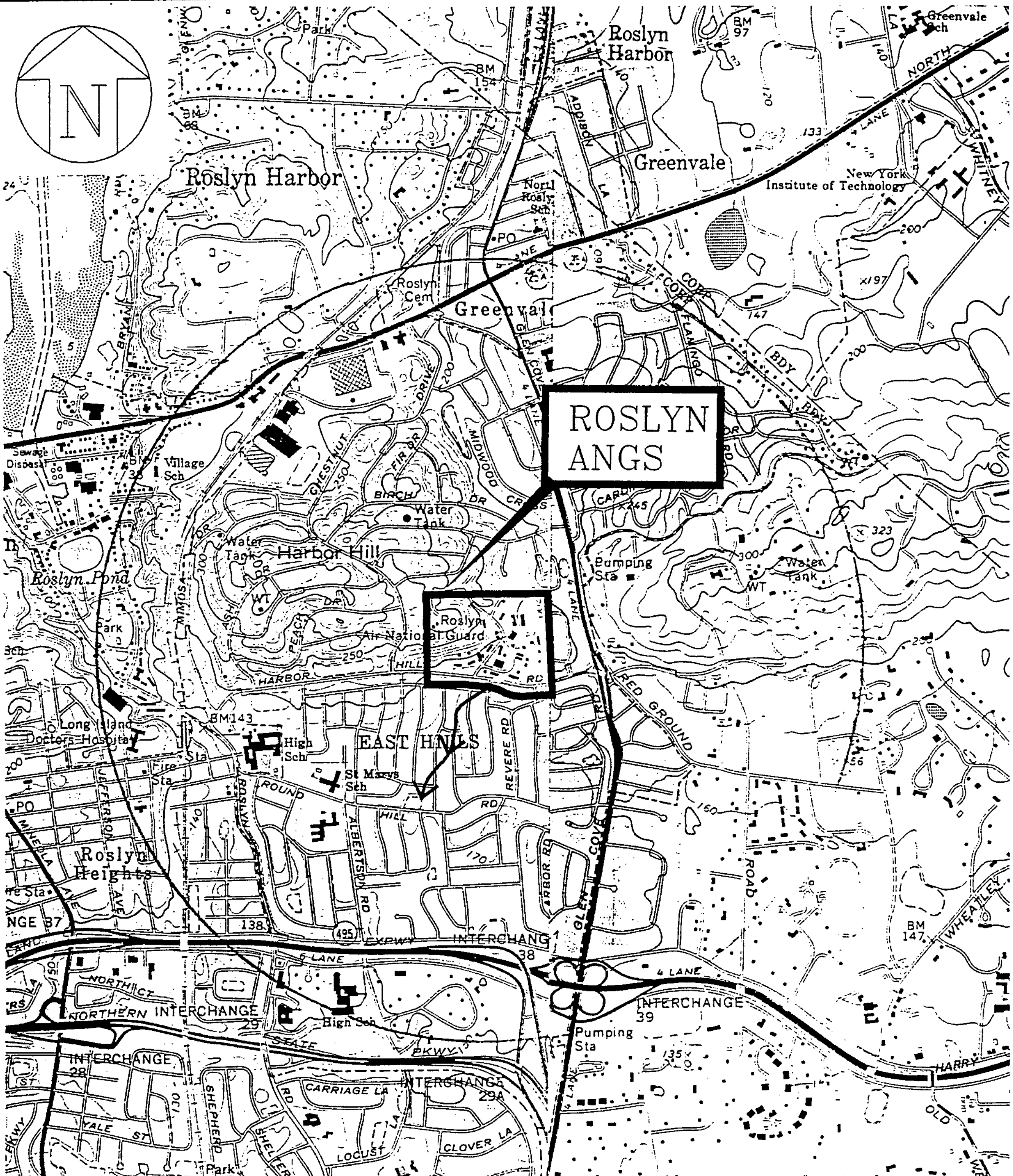
7. **Provide average number of persons per residence for county (or counties) that site is located in per the U.S. Census Bureau.**

   The average number of persons per residence for county is 2.94 people per household. (Source: Nassau County Clerk)

8. **Identify and locate all surface water bodies within two miles of site, marking off the drainage routed (shown on 7.5-minute topographic map) from each source to applicable surface water bodies. Provide the average annual cubic feet per second flow for each surface water body within 15 miles downriver or radius from the point of probable entry into surface water. For lakes, provide information on inflow and outflow.**

   The drainage route from the site is shown on Figure G.2. Water from the site drains directly into a retention basin, not any other surface water bodies since there are no surface water bodies the site can drain into. The average annual cubic flow is 0 since there are no surface bodies of water downriver of the site. (Source: U.S. Department of the Interior Geological Survey, 1968)

9. **For each source, choose one description from Table 2 that describes the surface water containment. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the Table.**



SOURCE: NASSAU COUNTY DEPARTMENT PUBLIC WORKS

LEGEND

→ Channelized Runoff From Station

0 1000 2000

SCALE IN FEET

DRAFT
FIGURE G.2

M\ROSLYN\SURFDRAN

SURFACE WATER DRAINAGE
Roslyn Air National Guard Station
New York Air National Guard
Roslyn, New York

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

JULY 1994

Figure G.2

The description form Table 2 that best describes the surface water containment is:

No evidence of hazardous substance migration from the source areas and: (a) Neither of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management.

10. **Provide the number of acres in each drainage basin.**

This information is not yet available. The County of Nassau, Department of Public Works is working on acquiring this information at the present time.(Source: County of Nassau, Department of Public Works)

11. **From Table 3, choose the predominant soil group (surface soil) which comprises the largest total area within each drainage area.**

The best surface soil description from Table 3 is medium to coarse textured soils with moderately rapid to very rapid infiltration rates.

12. **Provide the two-year, 24-hour rainfall.**

The two-year, 24-hour rainfall for the Roslyn area is 3.07" on December 11, 1992. (Source: La Guardia AP- Climatology Department)

13. **From Table 4, choose the floodplain category of each source (supply FEMA floodplain map) and determine if each source meets the criteria from Table 5 (engineer's certification).**

The floodplain category from Table 4 that best describes this area is:

None of the above.

14. **Provide the location of all drinking water intakes within 15 downstream miles (rivers) or 15-mile radius (lakes, bays, etc.). Provide information on population served. For multiple intakes (i.e., municipal system), provide information on the number of intakes, location of all intakes (regardless of 15-mile limit), and total population served by system. Include information on all standby intakes.**

This question does not apply to this area since surface water is not being used for the above purposes. (Source: Public Works)

15. **Provide information and location of intakes within 15 miles downriver (radius in lake or bay) that are used to irrigate five or more acres of commercial food or forage crops, or watering of commercial livestock, or ingredient in commercial food preparation, or supply for aquaculture, or supply for a major or designated water recreation area, excluding drinking water use.**

This question does not apply to this area since surface water is not used for the above purposes. (Source: Public Works)

16. **Provide any surface water body 15 miles downriver (radius in lakes or bay) used for drinking water.**

No surface water body is used for drinking purposes. (Source: Public Works)

17. **Provide the average human food chain production (pounds per year) for each surface water body 15 miles downriver or 15-mile radius in lake.**

This question cannot be answered for this site since it has not been calculated. (Source: Public Works)

18. **Within a 4-mile radius from the site and 15 miles downriver, or radius in lake, identify all sensitive environments that exist. Provide original documentation (USF&W, Natural Heritage Database, State agencies, NOAA, etc.), multiple sensitive environments within a sensitive environment.**

No sensitive environments exist within a 4-mile radius of the site. (Source: U.S. Department of the Interior Fish and Wildlife Service)

19. **What is the linear frontage of all wetlands 15 miles downriver or 15-mile radius in lake?**

Th linear frontage for all wetlands 15 miles downriver or 15-mile radius in lake is 0 since there are no rivers or lakes in the vicinity of the site. (Source: U.S. Department of the Interior Fish and Wildlife Service)

20. **Provide the location and number of persons residing, working, attending school, or day care within 200 feet. This includes both the Air and Army Guard.**

The average population within 200 feet of the site during the week is as follows:

Bldg. #19 = 10	UTA = 20
#20 = 0	6
#36 = 2	18
#6 = 3	160
#17 = 2	2
#9 = 2	6
#16 = 5	20
#26 = 4	20
	Avg = 50

During Unit Training Assembly (UTA) weekends the population is approximately 340. (Source: Capt Larry Johnson, NYANG)

21. **Identify all terrestrial sensitive environments that exist on-site. Provide original documentation (USF&W, Natural Heritage Database, State agencies, NOAA, etc.)**

and locate each on a 7.5-minute topographic map. Note that there could be multiple sensitive environments within a sensitive environment.

No sensitive environments exist on site. (Source: U.S. Department of the Interior Fish and Wildlife Service)

22. **For each source, choose one description from Table 8 that describes the accessibility to a human population. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the Table.**

The best description from Table 8 is:	Surrounded by maintained fence or combination of maintained fence and natural barriers.

23. **Provide the total number of people in following distance rings from source(s)?**

- **0 - 1/4 mile**
  This ring includes block #401, 403, 404, 405, 320, 319, 318, 301, 33, 302,304, 414, 409, 406, 405, 404, 402, 403, 120 and 119 with an **approximate total population of 385.7.**

- **1/4 - 1/2 mile**
  This ring includes block #403, 401, 404, 406, 405, 407, 408, 411, 320, 317, 316, 315, 318, 314, 313, 307, 306, 305, 202, 220, 221, 217, 222, 301, 303, 304, 101, 414, 415, 413, 412, 411, 410, 408, 409, 406, 404, 405, 407, 315, 316, 317, 201, 202, 205, 401, 402, 403, 120, 119, 118, 117, 108, 109, 110, 118, 116, 111, 112, 113, 114, 115, 101, 102 and 107 with an **approximate total population of 2272.26.**

- **1/2 - 1 mile**
  This ring includes track #3021.01, 3020, 3022, 3021.02, 3025.02 and 5177.05 with an **approximate total population of 7466.38**.

- **1 - 2 miles**
  This ring includes track #5177.01, 5175, 3020, 3014, 3016, 3019, 3009, 3022, 3021.01, 3023, 3024, 3025.01, 3034, 3021.02, 3025.02, 5177.05 and 5177.04 with an **approximate total population of 10,041.06**.

- **2 - 3 miles**
  This ring includes track #5176, 5174, 5175, 3020, 3010, 3014, 3016, 3017, 3019, 3009, 3022, 3023, 3031.02, 3024, 3033.01, 3033.02, 3036, 3034, 3037, 3025.01, 3021.02, 3038, 3040.01, 3039, 3040.02, 3021.01, 3025.02, 5177.06, 5177.05, 5177.04 and 5177.01 with an **approximate total population of 47,083.10.**

- **3 - 4 miles**
  This ring includes track #5177.01, 5173.02, 5172, 5176, 5171.01, 5174, 5175, 3020, 3010, 3014, 3013, 3012, 3015, 3016, 3018, 3017, 3019, 3022, 3021.01, 3021.02, 3023, 3024, 3025.01, 3031.01, 3031.02, 3029, 3032.02, 3032.01, 3035, 3036, 3034, 3037, 4064, 4066, 3038, 3039, 3040.01, 3040.02, 3041, 3042.2, 3042.01, 3025.02, 5185.01, 5177.06, 5177.05 and 5177.04 with an **approximate total population of 78,812.51.**

Use 1990 Census data and/or actual house counts. Document how calculated.

24. **For each source, choose one description from Table 9 that describes the gaseous containment. Provide complete documentation (i.e., engineering diagrams, photographs [originals]), as to why the source meets that description and not any other in the Table. From Table 10, choose the appropriate description of each source type. For each source, choose one description from Table 11 that describes that particulate containment. Provide complete documentation (i.e., engineering diagrams, photographs [originals]) as to why the source meets that description and not any other in the Table.**

    None of the descriptions from tables 9-11 apply to this site. (Source: 1990 Census)

25. **Provide the location and area (in acres) of all wetlands within 4 miles of the site.**

    The area of all wetlands within 4 miles of the site is approximately 270 acres. (Source: U.S. Department of the Interior Fish and Wildlife Wetlands Map)

26. **Contact EPA Regional Office immediately if any radionuclides are present or suspected at site and supply all radiological information known to date.**

    No radionuclides are present or suspected at this site. (Source: Capt Larry Johnson, NYANG)

27. **For all of the above information, use primary data source and supply two copies or specify where copies may be obtained.**

28. **Provide any removals or remedial actions taken place at site.**

    Seven Underground Storage Tanks have been removed as of September 1, 1993. A map showing the tanks has been included (See Figure G.2).

Tanks	Size	Product
18A	8,500	Diesel
18B	6,000	"
17B	5,000	#2 Fuel Oil
17C	5,000	"
0016	1,000	"

016D	2,000	Gasoline
009W	275	Waste Oil

Approximately 40 tons of contaminated soil is scheduled to be reacclimated through an Asphalt Batching Facility. (Source: Capt Larry Johnson, NYANG)

29. If information relevant to a question already has been provided to the EPA, your answer may precisely cite the previous submittal by title, date, page, and paragraph number rather than resubmitting the information. To assist in your efforts, also enclosed is a copy of EPA's draft Preliminary Assessment Guidance.

Table 1

All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks)

Evidence of hazardous substance migration from source area (i.e., source area includes source and any associated containment structures).

No liner.

No evidence of hazardous substance migration from source area, a liner, and:

(a) None of the following present: (1) maintained engineered cover, (2) functioning and maintained run-on control system and runoff management system, or (3) functioning leachate collection and removal system immediately above liner.

(b) Any one of the three items in (a) present.

(c) Any two of the items in (a) present.

(d) All three items in (a) present plus a functioning groundwater monitoring system.

(e) All items in (d) present plus no bulk or non-containerized liquids nor materials containing free liquids deposited in source area.

No evidence of hazardous substance migration from source area, double liner with functioning leachate collection and removal system above and between liners, functioning groundwater monitoring system, and:

(f) Only one of the following deficiencies present in containment: (1) bulk or noncontainerized liquids or materials containing free liquids deposited in source area, or (2) no or nonfunctioning or nonmaintained run-on control system and runoff management system, or (3) no or nonmaintained engineered cover.

(g) None of the deficiencies in (f) present.

Source area inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate is generated, liquid or materials containing free liquids not deposited in source area, and functioning and maintained run-on control present.

Surface Impoundment

Evidence of hazardous substance migration from surface impoundment.

No liner.

Free liquids present with either no diking, unsound diking, or diking that is not regularly inspected and maintained.

No evidence of hazardous substance migration from surface impoundment, free liquids present, sound diking that is regularly inspected and maintained, adequate freeboard, and:

(a) Liner.

(b) Liner with functioning leachate collection and removal system below liner, and functioning groundwater monitoring system.

(c) Double liner with functioning leachate collection and removal system between liners, and functioning groundwater monitoring system.

No evidence of hazardous substance migration from surface impoundment and all free liquids eliminated at closure (either by removal of liquids or solidification of remaining wastes and waste residues).

Land Treatment

Evidence of hazardous substance migration from land treatment zone.

No functioning, maintained, run-on control and runoff management system.

No evidence of hazardous substance migration from land treatment zone and:

(a) Functioning and maintained run-on control and runoff management system.

(b) Functioning and maintained run-on control and runoff management system, and vegetative cover established over entire land treatment area.

(c) Land treatment area maintained in compliance with 40 CFR 264.280.

Containers

All containers buried.

Evidence of hazardous substance migration from container area (i.e., container area includes containers and any associated containment structures).

No liner (or no essentially impervious base) under container area.

No diking (or no similar structure) surrounding container area.

Diking surrounding container area unsound or not regularly inspected and maintained.

No evidence of hazardous substance migration from container area, container area surrounded by sound diking that is regularly inspected and maintained, and:

- (a) Liner (or essentially impervious base) under container area.
- (b) Essentially impervious base under container area with liquids collection and removal system.
- (c) Containment system includes essentially impervious base, liquids collection system, sufficient contain 10 percent of volume of all containers, and functioning and maintained run-on control; plus functioning groundwater monitoring system, and spilled or leaked hazardous substances and accumulated precipitation removed in timely manner to prevent overflow of collection system, at least weekly inspection of containers, hazardous substances in leaking or deteriorating containers transferred to containers in good condition, and containers sealed except when waste is added or removed.
- (d) Free liquids present containment system has sufficient capacity to hold total volume of all containers and to provide adequate freeboard, single liner under container area with functioning leachate collection and removal system below liner, and functioning groundwater monitoring system.
- (e) Same as (d) except: double liner under container area with functioning leachate collection and removal system between liners.

Containers inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any unsealed or ruptured containers, liquids or materials containing free liquids not deposited in any container, and functioning and maintained runoff control present.

No evidence of hazardous substance migration from container area, containers leaking, and all free liquids eliminated at closure (either by removal of liquid or solidification of remaining wastes and waste residues).

Tank

Belowground tank.

Evidence of hazardous substance migration from tank area (i.e., tank area includes tank, ancillary equipment such as piping, and any associated containment structures).

Tank and ancillary equipment not provided with secondary containment, (e.g., liner under tank area, vault system, double wall).

No diking (or no similar structure) surrounding tank and ancillary equipment

Diking surrounding tank and ancillary equipment unsound or not regularly inspected and maintained.

No evidence of hazardous substance migration from tank area, tank and ancillary equipment surrounded by sound diking that is regularly inspected and maintained, and:

- (a) Tank and ancillary equipment provided with secondary containment.
- (b) Tank and ancillary equipment provided with secondary containment with leak detection and collection system.
- (c) Tank and ancillary equipment provided with secondary containment system that detects and collects spilled or leaked hazardous substances and accumulated precipitation and has sufficient capacity to contain 110 percent of volume of largest tank within containment area, spilled or leaked hazardous substances and accumulated precipitation removed in timely manner, at least weekly inspection of tank and secondary containment system, all leaking or unfit-for-use tank systems promptly responded to, and functioning groundwater monitoring system.
- (d) Containment system has sufficient capacity to hold volume of all tanks within tank containment area and to provide adequate freeboard, single liner under that containment area with functioning

leachate collection and removal system below liner, and functioning groundwater monitoring system.

(e) Same as (d) except double liner under tank containment area with functioning leachate collection and removal system between liners.

Tank is aboveground, and inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any material released from tank, liquids or materials containing free liquids not deposited in any tank, and functioning and maintained run-on control present.

Table 2

All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks)

Evidence of hazardous substance migration from source area (i.e., source area includes source and any associated containment structures).

No evidence of hazardous substance migration from source areas and:

(a) Neither of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system.

(b) Any one of the two items in (a) present.

(c) Any two of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system, or (3) liner with functioning leachate collection and removal system immediately above liner.

(d) All items in (c) present.

(e) All items in (c) present, plus no bulk or non-containerized liquids nor materials containing free liquids deposited in source area.

No evidence of hazardous substance migration from source area, double liner with functioning leachate collection and removal system above and between liners, and:

(f) Only one of the following deficiencies present in containment: (1) bulk or noncontainerized liquids or materials containing free liquids deposited in source area, or (2) no or nonfunctioning or nonmaintained run-on control system and runoff management system, or (3) no or nonmaintained engineered cover.

(g) None of the deficiencies in (f) present.

Source area inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate is generated, liquids or materials containing free liquids not deposited in source area, and functioning and maintained run-on control present.

Surface Impoundment

Evidence of hazardous substance migration from surface impoundment.

Free liquids present with either no diking, unsound diking, or diking that is not regularly inspected and maintained.

No evidence of hazardous substance migration from surface impoundment, free liquids present, sound diking that is regularly inspected and maintained, adequate freeboard, and:

(a) No liner.

(b) Liner.

(c) Liner with functioning leachate collection and removal system below liner.

(d) Double liner with functioning leachate collection and removal system between liners.

No evidence of hazardous substance migration from surface impoundment and all free liquids eliminated at closure (either by removal of liquids or solidification of remaining wastes and waste residues).

Land Treatment

Evidence of hazardous substance migration from land treatment zone.

No functioning and maintained run-on control and runoff management system.

No evidence of hazardous substance migration from land treatment zone <u>and:</u>

(a) Functioning and maintained and maintained run-on control and runoff management system.

(b) Functioning and maintained run-on control and runoff management system, and vegetative cover established over entire land treatment area.

(c) Land treatment area maintained in compliance with 40 CFR 264.280.

Containers

All containers buried.

Evidence of hazardous substance migration from container area (i.e., container area includes containers and any associated containment structures).

No diking (or no similar structure) surrounding container area.

Diking surrounding container area unsound or not regularly inspected and maintained.

No evidence of hazardous substance migration from container area and container area surrounded by sound diking that is regularly inspected and maintained.

No evidence of hazardous substance migration from container area, container area surrounded by sound diking that is regularly inspected and maintained, <u>and:</u>

(a) Essentially impervious base under container area with liquids collection and removal system.

(b) Containment system includes essentially impervious base, liquids collection system, sufficient capacity to contain 10 percent of volume of all containers, and functioning and maintained run-on control; and spilled or leaked hazardous substances and accumulated precipitation removed in timely manner to prevent overflow of collection system, at least weekly inspection of containers, hazardous substances in leaking or deteriorating containers transferred to containers in good condition, and containers sealed except when waste is added or removed.

(c) Free liquids present containment system has sufficient capacity to hold total volume of all containers and to provide adequate freeboard, and single liner under container area with functioning leachate collection and removal system below liner.

(d) Same as (c) except: double liner under container area with functioning leachate collection and removal system between liners. Containers inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any unsealed or ruptured containers, liquids or materials containing free liquids not deposited in any container, and functioning and maintained run-on control present.

No evidence of hazardous substance migration from container area, containers leaking, and all free liquids eliminated at closure (either by removal of liquids or solidification of remaining wastes and waste residues).

Tank

Belowground tank.

Evidence of hazardous substance migration from tank area (i.e., tank area includes tank, ancillary equipment such as piping, and any associated containment structures).

No diking (or no similar structure) surrounding tank and ancillary equipment.

Diking surrounding tank and ancillary equipment unsound or not regularly inspected and maintained.

No evidence of hazardous substance migration from tank area and tank and ancillary equipment surrounded by sound diking that is regularly inspected and maintained.

No evidence of hazardous substance migration from tank area, tank and ancillary equipment surrounded by sound diking that is regularly inspected and maintained, <u>and:</u>

(a) Tank and ancillary equipment provided with secondary containment (e.g., liner under tank area, vault system, double wall) with leak detection and collection system.

(b) Tank and ancillary equipment provided with secondary containment system that detects and collects spiked or leaked hazardous substances and accumulated precipitation and has sufficient capacity to contain 110 percent of volume of largest tank within containment area, spilled or leaked hazardous substances and accumulated precipitation removed in a timely manner, at least

weekly inspection of tank and secondary containment system, and all leaking or unfit-for-use tank systems promptly responded to.

(c) Containment system has sufficient capacity to hold total volume of all tanks within the tank containment area and to provide adequate freeboard, and single liner under tank containment area with functioning leachate collection and removal system below liner.

(d) Same as (c) except double liner under tank containment area with functioning leachate collection and removal system between liners.

Tank is aboveground, and inside or under maintained intact structure that provides protection from precipitation so that neither runoff nor leachate would be generated from any material released from tank, liquids or materials containing free liquids not deposited in any tank, and functioning and maintained run-on control present.

Table 3
Surface Soil Description

Coarse-textured soils with high infiltration rates (for example, sands, loamy sands).
Medium-textured soils with moderate infiltration rates (for example, sandy loams, loams).
Moderately fine-textured soils with low infiltration rates (for example, silty loams, silts, sandy clay loams).
Fine-textured soils with very low infiltration rates (for example, clays, sandy clays, silty clay loams, clay loams, silty clays); or impermeable surfaces (for example, pavement).

Table 4
Floodplain Categories

Source floods annually.
Source in 10-year floodplain.
Source in 100-year floodplain.
Source in 500-year floodplain.
None of the above.

Table 5
Flood Containment

Documentation that containment at the source is designed, constructed, operated, and maintained to prevent a washout of hazardous substances by the flood being evaluated (see floodplain category).

Table 6
Sensitive Environments

Critical habitat[a] for Federal designated endangered or threatened species.
Marine Sanctuary.
National Park.
Designated Federal Wilderness Area.
Areas identified under Coastal Zone Management Act[b].
Sensitive areas identified under National Estuary Program[c] or Near Coastal Waters Program[d].
Critical areas identified under the Clean Lakes Program[e].
National Monument[f].
National Seashore Recreational Area.
National Lakeshore Recreational Area.
Habitat known to be used by Federal designated or proposed endangered or threatened species.
National Preserve.

National or State Wildlife Refuge.
Unit of Coastal Barrier Resources System.
Coastal Barrier (undeveloped).
Federal land designated for protection of natural ecosystems.
Administratively Proposed Federal Wilderness Area.
Spawning areas critical[g] for the maintenance of fish/shellfish species within river, lake, or coastal tidal waters.
Migratory pathways and feeding areas critical for maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time.
Terrestrial areas utilized for breeding by large or dense aggregations of animals[h].
National river reach designated as Recreational.
Habitat known to be used by State designated endangered or threatened species.
Habitat known to be used by species under review as to its Federal endangered or threatened status.
Coastal Barrier (partially developed).
Federal designated Scenic or Wild River.
State land designated for wildlife or game management.
State designated Scenic or Wild River.
State designated Natural Areas.
Particular areas, relatively small in size, important to maintenance of unique biotic communities.
State designated areas for projection or maintenance of aquatic life[i].

[a]Critical habitat as defined in 50 CFR 424.02.
[b]Areas identified in State Coastal Zone Management plans as requiring protection because of ecological value.
[c]National Estuary Program study areas (Subareas within subareas) identified in Comprehensive Conservation and Management Plans as requiring protection because they support critical life stages of key estuarine species (Section 320 of Clean Water Act, as amended).
[d]Near Coastal Waters as defined in Sections 104(b)(3), 304(1), 319, and 320 of Clean Water Act, as amended.
[e]Clean Lakes Program critical areas (subareas within lakes, or in some cases entire small lakes) identified by State Clean Lake Plans as critical habitats (Section 314 of Clean Water Act, as amended).
[f]Use only for air migration pathway.
[g]Limit to areas described as being used for intense or concentrated spawning by a given species.
[h]For the air migration pathway, limit to terrestrial vertebrate species. For the surface water migration pathway, limit to terrestrial vertebrate species aquatic or semiaquatic foraging habits.
[i]Areas designated under Section 305(a) of Clean Water Act, as amended.

Table 7
Terrestrial Sensitive Environments

Terrestrial critical habitat[a] for Federal designated endangered or threatened species.
National Park.
Designated Federal Wilderness Area.
National Monument.
Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species.
National Preserve (terrestrial).
National or State Terrestrial Wildlife Refuge.
Federal land designated for protection of natural ecosystems.
Administratively proposed Federal Wilderness Area.
Terrestrial areas utilized for breeding by large or dense aggregations of animals[b].
Terrestrial habitat known to be used by State designated endangered or threatened species.
Terrestrial habitat known to be used by species under review as to its Federal designated endangered or threatened status.
State lands designated for wildlife or game management.
State designated Natural Areas.
Particular area, relatively small in size, important to maintenance of unique biotic communities.

[a]Critical habitat as defined in 50 CFR 42.
[b]Limit to vertebrate species.

Table 8
Area of Observed Contamination

Designated recreational area.
Regularly used for public recreation (for example, fishing, hiking, softball).
Accessible and unique recreational area (for example, vacant lots in urban area).
Moderately accessible (may have some access improvements – for example, gravel road), with some public recreation use.
Slightly accessible (for example, extremely rural area with no road improvement), with some public recreation use.
Accessible, with no public recreation use.
Surrounded by maintained fence or combination of maintained fence and natural barriers.
Physically inaccessible to public, with no evidence of public recreation use.

Table 9
Gas Containment Description

All situations except those specifically listed below.
Evidence of biogas release.
Active fire within source.
Gas collection/treatment system functioning, regularly inspected, maintained, and completely covering source.
Source substantially surrounded by engineering windbreak and no other containment specifically described in this table applies.
Source covered with essentially impermeable, regularly inspected, maintained cover.
Uncontaminated soil cover >3 feet:
- Source substantially vegetated with little exposed soil.
- Source lightly vegetated with much exposed soil.
- Source substantially devoid of vegetation.

Uncontaminated soil cover ≥ 1 foot and ≤ 3 feet:
- Source heavily vegetated with essentially no exposed soil.
- Cover soil resistant to gas migration[a].
- Cover soil type not resistant to gas migration[a] or unknown.
- Source substantially vegetated with little exposed soil and cover soil type resistant to gas migration[a].
- Other.

Uncontaminated soil cover <1 foot:
- Source heavily vegetated with essentially no exposed soil and cover soil type resistant to gas migration[a].
- Other.

Totally or partially enclosed within structurally intact building and no other containment specifically described in this table applies.
Source consists solely of intact, sealed containers:
- Totally protected from weather by regularly inspected, maintained cover.
- Other.

[a]Consider moist fine-grained and saturated coarse-grained soils resistant to gas migration; consider all other soils nonresistant.

Table 10
Source Type

Active fire area.
Burn pit.
Containers or tanks (buried/belowground):
- Evidence of biogas release.
- No evidence of biogas release.

Containers or tanks, not elsewhere specified.
Contaminated soil (excluding land treatment).
Landfarm/land treatment.
Landfill:
- Evidence of biogas release.
- No evidence of biogas release.

Pile:
- Tailings pile.
- Scrap metal or junk pile.
- Trash pile.
- Chemical waste pile.
- Other waste piles.

Surface impoundments (buried/backfilled):
- Evidence of biogas release.
- No evidence of biogas release.

Surface impoundment (not buried/backfilled):
- Dry.
- Other.

Other types of sources, not elsewhere specified.

Table 11
Particulate Containment Description

All situations except those specifically listed below.
Source contains only particulate hazardous substances totally covered by liquids.
Source substantially surrounded by engineered windbreak and no other containment specifically described in this table applies.
Source covered with essentially impermeable, regularly inspected, maintained cover.
Uncontaminated soil cover >3 feet:
- Source substantially vegetated with little or no exposed soil.
- Source lightly vegetated with much exposed soil.
- Source substantially devoid of vegetation.

Uncontaminated soil cover ≥1 foot and ≤3 feet:
- Source heavily vegetated with essentially no exposed soil:
  - Cover soil type resistant to gas migration[a].
  - Cover soil type not resistant to gas migration[a].
- Source substantially vegetated with little exposed soil and cover soil type resistant to gas migration[a].
- Other.

Uncontaminated soil cover <1 foot:
- Source heavily vegetated with essentially no exposed soil and cover soil type resistant to gas migration[a].
- Other.

Totally or partially enclosed within structurally intact building and no other containment specifically described in this table applies.
Source consists solely of containers:
- All containers contain only liquids.
- All containers intact, sealed, and totally protected from weather by regularly inspected, maintained cover.
- All containers intact and sealed.
- Other.

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[a]Consider moist fine-grained and saturated coarse-grained soils resistant to gas migration; consider all other soils nonresistant.

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